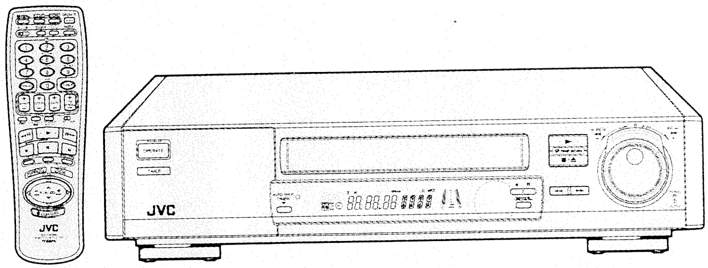
JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-E939EG/EH



SHOW VIEW

TIME SCAN Hi-Fi VHS
PAL

SPECIFICATIONS

GENERAL

Power requirement : AC 220 – 240 V∿, 50/60 Hz
Power consumption : 24 W
Temperature
Operating : 5°C to 40°C
Storage : –20°C to 60°C
Operating position : Horizontal only
Dimensions (WxHxD) : 465 x 105 x 353 mm
Weight : 5.4 kg
Format : VHS PAL standard
Maximum recording time
(SP) : 240 min. with E-240 video cassette
(LP) : 480 min. with E-240 video cassette

VIDEO/AUDIO

Signal system : PAL-type colour signal and CCIR monochrome signal,625 lines 50 fields
Recording system : DA4 (Double Azimuth) head helical scan system
Signal-to-noise ratio : 45 dB
Horizontal resolution : 250 lines
Frequency range : 70 Hz to 10,000 Hz (Normal audio)
20 Hz to 20,000 Hz (Hi-Fi audio)
Input/Output : 21-pin scart connectors (IN/OUT x 1, IN/DECODER x 1)
RCA connectors (VIDEO IN x 1, AUDIO IN x 1, AUDIO OUT x 1)

TUNER/TIMER

TV channel storage capacity : 99 positions (+AUX position "AU")
Tuning system : Frequency synthesized tuner
Channel coverage : VHF 47 – 89/104 – 300/302 – 470MHz
UHF 470 – 862MHz
Aerial output : UHF channel 36 (Adjustable 32 – 40)
Memory backup time : Approx. 60 min.

ACCESSORIES

Provided accessories : RF cable,
Infrared remote control unit,
"R6" battery x 2

Specifications shown are for SP mode unless otherwise specified. E.& O.E. Design and specifications subject to change without notice.

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No. 82560
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TABLE OF CONTENTS

Section Title Page

Important Safety Precautions
INSTRUCTIONS

1. DISASSEMBLY

1.1 DISASSEMBLY FLOW CHART 1-1
1.2 HOW TO READ THE DISASSEMBLY AND ASSEMBLY 1-1
1.3 DISASSEMBLY/ASSEMBLY METHOD 1-1
1.4 CASSETTE HOUSING INSTALLATION 1-4
1.5 SERVICE POSITION 1-5
1.5.1 How to take out the Mechanism and Main board assemblies 1-5
1.5.2 Cautions on cassette loading when mechanism is in service position 1-6
1.5.3 Cassette loading and ejecting procedures when mechanism is in service position 1-6
1.5.4 Opening on the chassis 1-6
1.6 MECHANISM SERVICE MODE 1-7
1.6.1 How to set the "MECHANISM SERVICE MODE" 1-7
1.7 EMERGENCY DISPLAY FUNCTION 1-8
1.7.1 How to display record of an emergency faults 1-8
1.7.2 Detail of emergency faults 1-8
1.7.3 How to clear emergency record 1-8

2. MECHANISM ADJUSTMENT

2.1 PREPARATION 2-1
2.1.1 Precautions 2-1
2.1.2 Check without cassette housing assembly 2-1
2.1.3 Manual removal of loaded tape 2-1
2.1.4 Test Equipment 2-2
2.2 MAIN MECHANISM PARTS 2-2
2.2.1 Cleaning 2-3
2.2.2 Lubrication 2-3
2.3 INSPECTION AND MAINTENANCE 2-4
2.3.1 Suggested servicing schedule for main components 2-4
2.4 DISASSEMBLY/ASSEMBLY PROCEDURE OF MECHANISM 2-4
2.4.1 Precaution before disassembling mechanism 2-4
2.4.2 How to set the exclusive mechanism operation mode (MECHANISM ASSEMBLING MODE) 2-4
2.5 MAIN PARTS REPLACEMENT OF MECHANISM 2-4
2.5.1 Pinchi Roller Arm Assembly 2-4
2.5.2 A/C Head 2-5
2.5.3 Pinch plate 2-5
2.5.4 Loading Motor 2-6
2.5.5 Lever Assembly,Sub Deck Assembly,Capstan Motor 2-6
2.5.6 Control Bracket-1,Earth Plate 2-7
2.5.7 Reel Bracket, Slit Disk (take-up) 2-7
2.5.8 Control Bracket-2,Control Plate 2-7
2.5.9 Sub Brake (take-up),Control Cam 2-8
2.5.10 Slide Plate 2-8
2.5.11 Change Lever,Rotary Encoder 2-8
2.5.12 Sub Brake (supply), Tension Band Assembly,Tension Arm Assembly, Take-up Lever Assembly, Slit Disk (supply) 2-9
2.5.13 Take -up Head, Tension Arm Lever 2-9
2.5.14 Guide Rail 2-10
2.5.15 Stator Assembly 2-10
2.5.16 Rotor Assembly 2-10
2.5.17 Upper Drum Assembly 2-11
2.6 CHECKUP AND ADJUSTMENT OF MECHANISM PHASE 2-12
2.6.1 Precaution 2-12
2.6.2 Loading Arm Assembly(supply,take-up) 2-12
2.6.3 Rotary Encoder,Change Lever,Control Cam 2-13
2.6.4 Slide plate 2-13
2.6.5 Control Plate 2-13
2.7 TAPE INTERCHANGEABILITY ADJUSTMENT 2-14
2.7.1 Tape pattern 2-14
2.7.2 A/C head height & azimuth 2-15
2.7.3 A/C head phase (X-value) 2-16
2.7.4 LP mode auto tracking 2-16
2.7.5 Tension pole position 2-17
2.7.6 Take-up torque 2-17

3.ELECTRICAL ADJUSTMENT

3.1 PRECAUTION 3-1
3.1.1 Required test equipment 3-1

Section Title Page

3.1.2 Required adjustment tools 3-1
3.1.3 Colour bar signal,colour bar pattern 3-1
3.2 SERVO CIRCUIT 3-2
3.2.1 PB switching point 3-2
3.2.2 Slow tracking preset 3-2
3.2.3 Dynamic drum preset 3-2
3.3 VIDEO CIRCUIT 3-3
3.3.1 Auto picture 3-3
3.4 SYSCON CIRCUIT 3-3
3.4.1 Timer clock 3-3
3.5 TUNER CIRCUIT 3-4
3.5.1 RF AGC 3-4
3.6 DEMODULATOR CIRCUIT 3-4
3.6.1 Stereo separation 3-4
3.7 AUDIO CIRCUIT 3-4
3.7.1 REC level control 3-4

4. CHARTS AND DIAGRAMS

SCHEMATIC DIAGRAM NOTES 4-1
CIRCUIT BOARD NOTES 4-2
4.1 BOARD INTERCONNECTIONS 4-3
4.2 VIDEO BLOCK DIAGRAM 4-5
4.3 SYSTEM CONTROL BLOCK DIAGRAM 4-7
4.4 AUDIO BLOCK DIAGRAM 4-9
4.5 SWITCHING REGULATOR SCHEMATIC DIAGRAM 4-11
4.6 SWITCHING REGULATOR CIRCUIT BOARD 4-13
4.7 VIDEO AND AUDIO SCHEMATIC DIAGRAM 4-15
4.8 FMA SCHEMATIC DIAGRAM 4-17
4.9 SYSTEM CONTROL SCHEMATIC DIAGRAM 4-19
4.10 SUB CPU SCHEMATIC DIAGRAM 4-21
4.11 TUNER SCHEMATIC DIAGRAM 4-23
4.12 SERVO SCHEMATIC DIAGRAM 4-25
4.13 ON SCREEN SCHEMATIC DIAGRAM 4-27
4.14 TERMINAL (MAIN) SCHEMATIC DIAGRAM 4-29
4.15 MAIN AND A/C HEAD CIRCUIT BOARDS 4-33
4.16 TERMINAL SCHEMATIC DIAGRAM 4-35
4.17 TERMINAL CIRCUIT BOARD 4-37
4.18 DEMODULATOR SCHEMATIC DIAGRAM 4-39
4.19 DEMODULATOR CIRCUIT BOARD 4-41
4.20 DISPLAY,SW/JACK,REC SAFETY,AND CASSETTE SW SCHEMATIC DIAGRAMS 4-43
4.21 DISPLAY,SW/JACK,REC SAFETY AND CASSETTE SW CIRCUIT BOARDS 4-45
4.22 PRE/REC SCHEMATIC DIAGRAM 4-47
4.23 PRE/REC CIRCUIT BOARDS 4-49
4.24 FMA PRE/REC SCHEMATIC DIAGRAM 4-51
4.25 PDC SCHEMATIC DIAGRAM 4-53
4.26 PDC CIRCUIT BOARD 4-54
4.27 VSC SCHEMATIC DIAGRAM 4-55
4.28 VSC CIRCUIT BOARD 4-57
4.29 JOG SCHEMATIC DIAGRAM 4-58
4.30 REMOTE CONTROL SCHEMATIC DIAGRAM 4-59

5. PARTS LIST

5.1 PACKING AND ACCESSORY <M1> 5-1
5.2 CABINET AND CHASSIS ASSEMBLY <M2> 5-2
5.3 MECHANISM ASSEMBLY <M4> 5-4
5.4 ELECTRICAL PARTS LIST 5-6
SWITCH REG BOARD ASSEMBLY <01> 5-6
MAIN BOARD ASSEMBLY <03> 5-7
TERMINAL BOARD ASSEMBLY <06> 5-13
AUDIO/CONTROL HEAD BOARD ASSEMBLY <12> 5-14
DEMOD BOARD ASSEMBLY <14> 5-14
DISPLAY/SW BOARD ASSEMBLY <28> 5-15
REC SAFETY BOARD ASSEMBLY <32> 5-16
CASS SW BOARD ASSEMBLY <33> 5-16
SW/JACK BOARD ASSEMBLY <36> 5-16
PRE/REC BOARD ASSEMBLY <43> 5-17
PDC BOARD ASSEMBLY <70> 5-18
VSC BOARD ASSEMBLY <72> 5-18
JOG BOARD ASSEMBLY <85> 5-18

6 TECHNICAL INFORMATION

6.1 SYSCON CIRCUIT 6-1

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▨) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

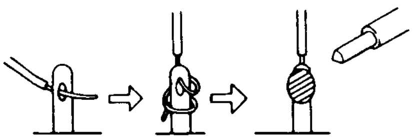


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

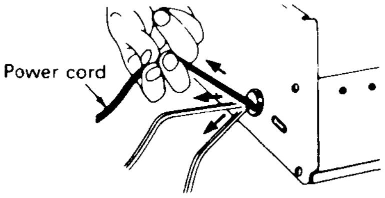


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

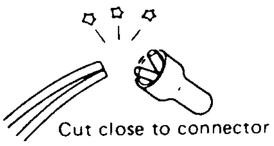


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

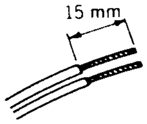


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

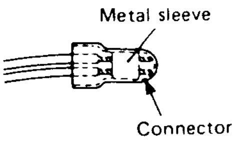


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

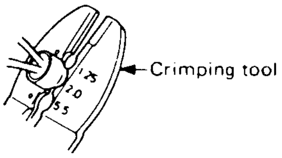


Fig. 6

(5) Check the four points noted in Fig. 7.

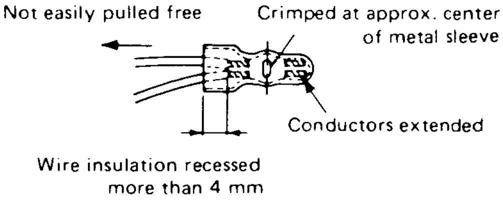

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

●Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

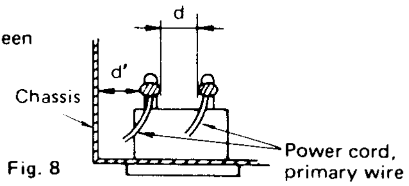


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

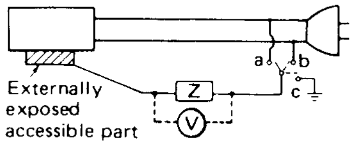


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

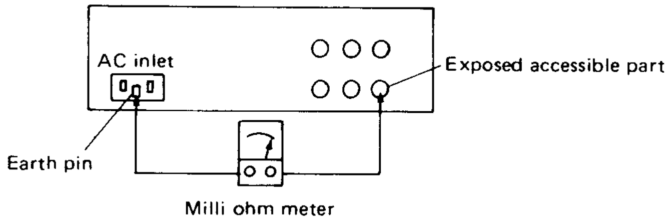


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	—	AC 1 kV 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 µF 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

Safety Precautions

The rating plate and the safety caution are on the rear of the unit.

WARNING: DANGEROUS VOLTAGE INSIDE
WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

CAUTION

- When you are not using the recorder for a long period of time, it is recommended that you disconnect the power cord from the mains outlet.
- Dangerous voltage inside. Refer internal servicing to qualified service personnel. To prevent electric shock or fire hazard, remove the power cord from the mains outlet prior to connecting or disconnecting any signal lead or aerial.

WARNING

There are two different types of SECAM colour systems: SECAM-L, used in FRANCE (also called SECAM-West), and SECAM-B, used in Eastern European countries (also called SECAM-East).

1. This recorder can also receive SECAM-B colour television signals for recording and playback.
2. Recordings made of SECAM-B television signals produce monochrome pictures if played back on a video recorder of SECAM-L standard, or do not produce normal colour pictures if played back on a PAL video recorder with SECAM-B system incorporated (even if the TV set is SECAM-compatible).
3. SECAM-L prerecorded cassettes or recordings made with a SECAM-L video recorder produce monochrome pictures when played back with this recorder.
4. This recorder cannot be used for the SECAM-L standard. Use a SECAM-L recorder to record SECAM-L signals.

For Italy:

"It is declared that this product, brand JVC, conforms to the Ministry Decree n. 548 of 28 Aug.'95 published in the Official Gazette of the Italian Republic n. 301 of 28 Dec.'95"

VHS PAL HQ SHOWVIEW

- Only cassettes marked "VHS" can be used with this videorecorder.
- HQ VHS is compatible with existing VHS equipment.
- ShowView is a trademark applied for by Gemstar Development Corporation. The ShowView system is manufactured under licence from Gemstar Development Corporation.

IMPORTANT

- Please read the various precautions on this page before installing or operating the recorder.
- It should be noted that it may be unlawful to re-record pre-recorded tapes, records, or discs without the consent of the owner of copyright in the sound or video recording, broadcast or cable programme and in any literary, dramatic, musical, or artistic work embodied therein.

The OPERATE button does not completely shut off mains power from the unit, but switches operating current on and off.

Video tapes recorded with this video recorder in the LP (Long Play) mode cannot be played back on a single-speed video recorder.

Failure to heed the following precautions may result in damage to the recorder, remote control or video cassette.

1. **DO NOT place the recorder . . .**
   ... in an environment prone to extreme temperatures or humidity.
   ... in direct sunlight.
   ... in a dusty environment.
   ... in an environment where strong magnetic fields are generated.
   ... on a surface that is unstable or subject to vibration.
2. **DO NOT block the recorder's ventilation openings.**
3. **DO NOT place heavy objects on the recorder or remote control.**
4. **DO NOT place anything which might spill on top of the recorder or remote control.**
5. **AVOID violent shocks to the recorder during transport.**

MOISTURE CONDENSATION

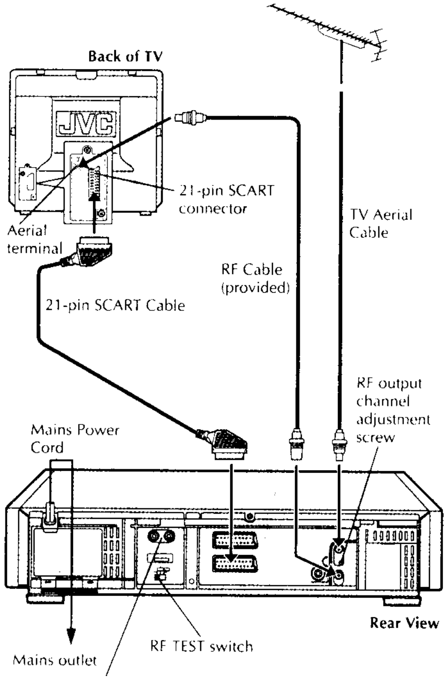
Moisture in the air will condense on the recorder when you move it from a cold place to a warm place, or under extremely humid conditions—just as water droplets form in the surface of a glass filled with cold liquid. Moisture condensation on the head drum will cause damage to the tape. In conditions where condensation may occur, keep the recorder turned on for a few hours to let the moisture dry.

ABOUT HEAD CLEANING

Accumulation of dirt and other particles on the video heads may cause the playback picture to become blurred or interrupted. Be sure to contact your nearest JVC dealer if such troubles occur.

Basic Connections

It's essential that your video recorder be properly connected. Follow these steps carefully. THESE STEPS MUST BE COMPLETED BEFORE ANY VIDEO OPERATION CAN BE PERFORMED.



AUDIO OUT(put) connectors
For connection to the audio input connectors on a Hi-Fi stereo system

1 CHECK CONTENTS

Make sure the package contains all of the accessories listed in "Specifications" (☞ pg. 47).

2 SITUATE RECORDER

Place the recorder on a stable, horizontal surface.

3 CONNECT RECORDER TO TV

The connection method you use depends on the type of TV you have.

RF CONNECTION

- *To Connect To A TV With NO AV Input Terminals . . .*
  - **a**– Disconnect the TV aerial cable from the TV.
  - **b**– Connect the TV aerial cable to the ANT. IN jack on the rear panel of the recorder.
  - **c**– Connect the provided RF cable between the RF OUT jack on the rear panel of the recorder and the TV's aerial terminal.

Before operating the recorder, make sure the TV's channel is set to the VIDEO channel.

AV CONNECTION

- *To Connect To A TV With AV Input Terminals . . .*
  - **a**– Connect the aerial, recorder and TV as per "RF CONNECTION".
  - **b**– Connect an optional SCART cable between the AV1 IN/OUT socket on the rear panel of the recorder and the TV's 21-pin SCART connector.
  - **c**– Set the **RF TEST** switch to OFF.

Before operating the recorder, make sure the TV is set to the VIDEO (or AV) mode.

4 CONNECT RECORDER TO MAINS

Plug the end of the mains power cord into a mains outlet.

Tune The TV To Your Video Recorder

The video recorder sends picture and sound signals via the RF connecting cable to your TV on UHF channel 36.

1 TURN ON THE RECORDER

Press **OPERATE**.

2 SELECT OUTPUT MODE

Set the **RF TEST** switch on the back of the recorder to ON.

CONTINUED ON NEXT PAGE.

3 SET TV CHANNEL

Set your TV to the video channel (UHF channel 36). Two white bars appear on screen vertically.

- Tune the TV until the bars are as clear as they can be.
- Your TV should be set to the channel designated for use with a video recorder, or to a spare channel if there is not a specified video channel on your TV.

4 RESET OUTPUT MODE

Return the **RF TEST** switch to OFF.

NOTES:

- *If CH36 is occupied by a local station, adjust the RF output channel adjustment screw to use another channel between CH32 and CH40 instead.*
- *If some interference noise is continually seen on the screen, consult your JVC dealer.*

Connecting/ Using A Decoder

The AV2 IN/DECODER connector can be used as an input terminal for an external decoder (descrambler). Simply connect a decoder and you can enjoy the variety of programming that is available through scrambled channels.

1 SELECT INPUT MODE

Set the **AV2 SELECT** switch to "DECODER".

2 CONNECT DECODER

Connect your recorder's AV2 IN/DECODER connector to the decoder's Euroconnector using a 21-pin SCART cable.

3 SET TUNER

Follow the procedure starting on page 5.

NOTE:

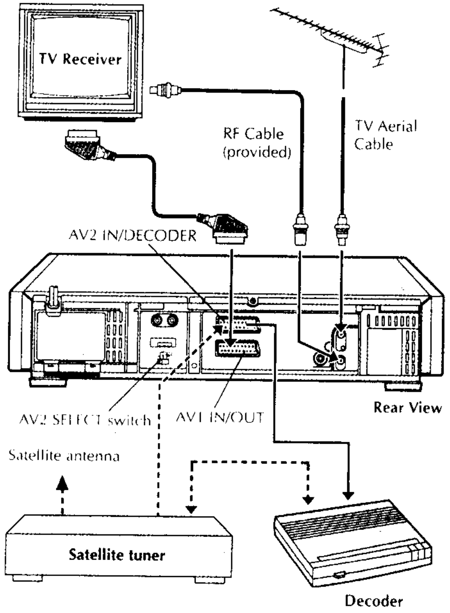
When Connecting A Satellite Tuner . . .

. . . if you don't have a decoder connect the satellite tuner directly to the video recorder's AV2 IN/DECODER connector.

. . . if you have a decoder, first connect the decoder to the decoder input of the satellite tuner, then connect the satellite tuner's output to the recorder's AV2 IN/DECODER connector. Refer to the instruction book for the satellite tuner and decoder.

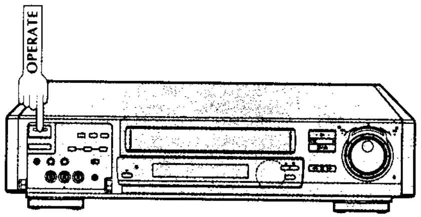
*. . . set the **AV2 SELECT** switch to "AV2".*

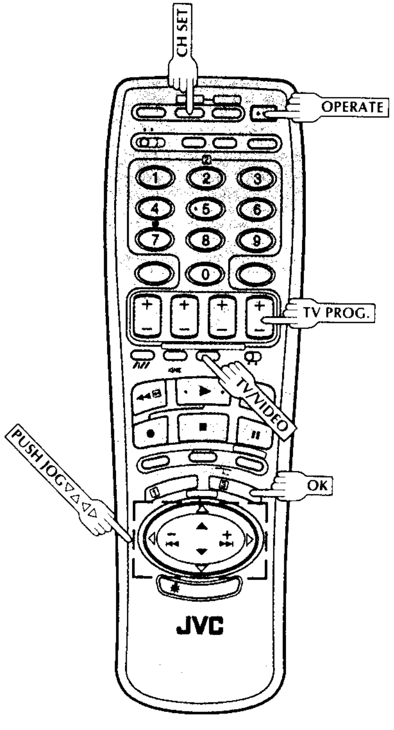
*. . . to view a programme via the satellite tuner, select AU 2 mode by pressing **TV PROG.** until "AU 2" appears on the display panel.*



Tuner Set

Turn on the TV and select the VIDEO channel (or AV mode).





Your recorder needs to memorise all necessary stations in channel positions in order to record TV programmes. ATS+ (Auto Tuning System) automatically assigns all receivable stations in your area to call them up with the **TV PROG.** buttons without going through any vacant channels.

The following procedure describes how to select automatic channel setting.

1 TURN ON THE RECORDER

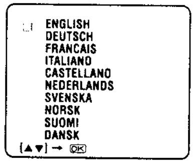
Press **OPERATE**.

2 ACCESS LANGUAGE SCREEN

Press and hold **CH SET** for more than 2 seconds. The Language screen appears.

3 SELECT LANGUAGE

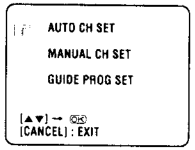
Press **PUSH JOG△▽** to place the pointer next to the language of your choice, then press **OK** to enter your selection. The Ch. Set mode menu appears.



ENGLISH
DEUTSCH
FRANCAIS
ITALIANO
CASTELLANO
NEDERLANDS
SVENSKA
NORSK
SUOMI
DANSK
[▲▼] → OK

4 SELECT MODE

"AUTO CH SET" is the necessary mode for this procedure, so simply press **OK** to enter the selection. The Country select screen appears.



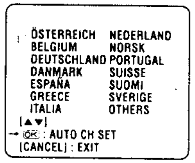
AUTO CH SET
MANUAL CH SET
GUIDE PROG SET

[▲▼] → OK
[CANCEL] : EXIT

5 SELECT COUNTRY

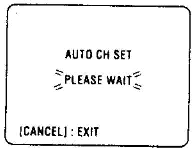
Press **PUSH JOG△▽** to place the pointer next to your country's name, then press **OK** to initiate Auto Channel Set.

- As the recorder searches for receivable stations, it displays broadcasts from the stations for a few seconds as it locates them.



ÖSTERREICH	NEDERLAND
BELGIUM	NORSK
DEUTSCHLAND	PORTUGAL
DANMARK	SUISSE
ESPAÑA	SUOMI
GREECE	SVERIGE
ITALIA	OTHERS

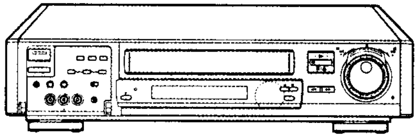
[▲▼]
→ OK : AUTO CH SET
[CANCEL] : EXIT

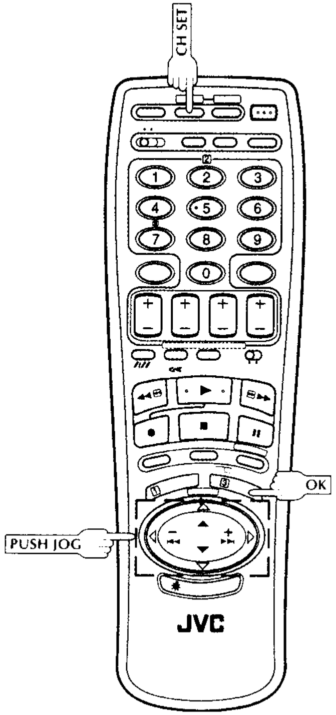


AUTO CH SET
PLEASE WAIT

[CANCEL] : EXIT

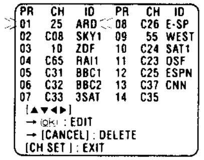
CONTINUED ON NEXT PAGE.





6 VIEW CONFIRMATION SCREEN

The stations your recorder located appear on a Confirmation screen — channel positions (PR), channels (CH) and station names (ID– ☞ pg. 40). To view the next page of the listing, press **PUSH JOG**△▽◁▷. The blueback screen and the program currently being broadcast by the highlighted station appear alternately for 5 seconds each.



```
PR   CH   ID    PR   CH   ID
01   25   ARD   08   C26  E-SP
02   C08  SKY1  09   55   WEST
03   10   ZDF   10   C24  SAT1
04   C65  RAI1  11   C23  OSF
05   C31  BBC1  12   C25  ESPN
06   C32  BBC2  13   C37  CNN
07   C33  3SAT  14   C35
 [▲▼◀▶]
 → OK : EDIT
 → [CANCEL] : DELETE
[CH SET] : EXIT
```

C: Cable

- The stations located in the selected country appear at the top of the list.

7 RETURN TO NORMAL SCREEN

Press **CH SET**.

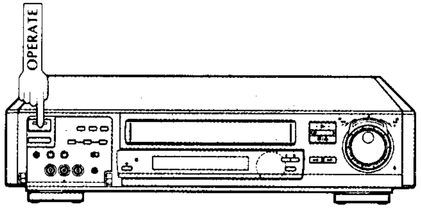
- Depending on the reception conditions, the stations may not be stored in order, and the station names may not be stored correctly.
- Using the Confirmation screen, you can skip or add channel positions, enter station names and perform other operations. Refer to page 38 for the procedures.
- For information on scrambled broadcasts, refer to page 38.

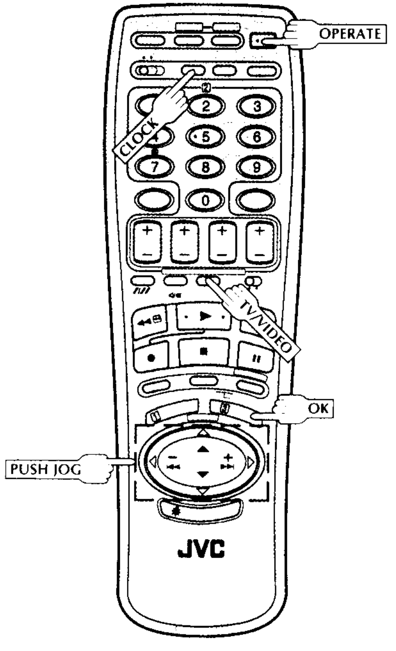
NOTES:

- *Fine tuning is performed automatically when you select "AUTO CH SET". If you want to perform it manually, refer to page 39.*
- *To set the tuner manually, refer to "Storing Channels Manually" (☞ pg. 38).*

Clock Set

Turn on the TV and select the VIDEO channel (or AV mode)





If you performed Auto Channel Set (☞ pg. 5), the recorder's built-in clock is also set automatically. The Auto and Manual clock setting procedures are necessary when . . .
- a power outage of more than 60 minutes occurs.
- the tuner has been set manually.
- the user desires to set the clock slightly ahead of the actual time.
- the clock was not set even after Auto Tuner Set was performed.

Whether you perform Auto or Manual clock setting, you can use the convenient Just Clock function.

Just Clock
The Just Clock function provides accurate time keeping through automatic adjustments at regular intervals, by reading data from a PDC signal.
The Just Clock option appears in the Clock Set and Auto Clock screens, and can be set "ON" or "OFF" (the default setting is "ON"). Press **OK** until the Just Clock setting begins blinking, then press **PUSH JOG**△▽ to change the setting.

IMPORTANT: If you turn off Just Clock off, the accuracy of your recorder's built-in clock may be reduced, which could adversely effect timer recording.

Both Auto and Manual clock setting procedures begin from step 3.

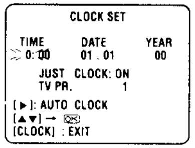
Preparation

1 TURN THE RECORDER ON

Press **OPERATE**.

2 ACCESS CLOCK SET SCREEN

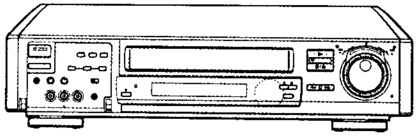
Press **CLOCK** on the remote control. The Clock Set screen appears.

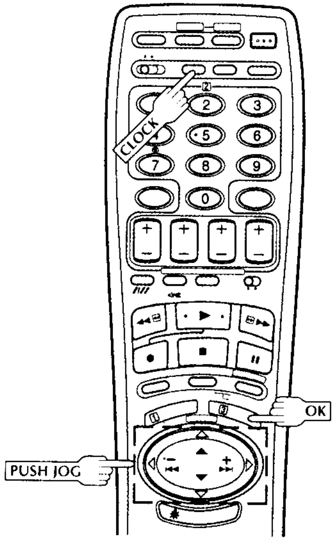


```
          CLOCK SET

 TIME        DATE        YEAR
 0:00        01 . 01      00
    JUST  CLOCK: ON
    TV PR.          1
[▶]: AUTO  CLOCK
[▲▼] → OK
[CLOCK] : EXIT
```

CONTINUED ON NEXT PAGE.

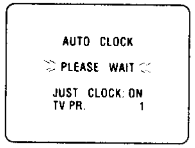




Auto Clock Set

3 SET CLOCK AUTOMATICALLY

At the Clock Set screen, press **PUSH JOG**▷. The Auto Clock screen appears and clock setting begins.



AUTO CLOCK

⊳ PLEASE WAIT ⊲

JUST CLOCK: ON
TV PR. 1

- If "TV PR." isn't set to the channel position on which Auto Clock data is received, "ERROR" appears, and then the screen from step **2** reappears. To set "TV PR.", press **OK** to place the pointer next to it, then cycle through the numbers by pressing **PUSH JOG**△▽ until the number representing the channel position in which the station transmitting clock setting data is stored appears.

4 RETURN TO NORMAL SCREEN

Once clock setting is completed, press **CLOCK** to return to the normal screen.

Manual Clock Set

3 SET DATE AND TIME

Press **PUSH JOG**△▽ to set the hour, then press **OK**. The "minutes" display begins blinking. Repeat the procedure to set the minutes, day, month and year.

4 SET JUST CLOCK

The default setting is "ON". Set as desired by pressing **PUSH JOG**△▽, then press **OK**.

- If you set to "OFF", you can disregard the next step as you won't be able to receive regular clock adjustments.

5 SET CLOCK DATA SOURCE CHANNEL POSITION

The recorder is preset to receive clock setting and adjustment data from channel position 1. Press **PUSH JOG**△▽ to set the channel position to the number representing the station transmitting clock setting data, then press **OK**.

6 START CLOCK OPERATION

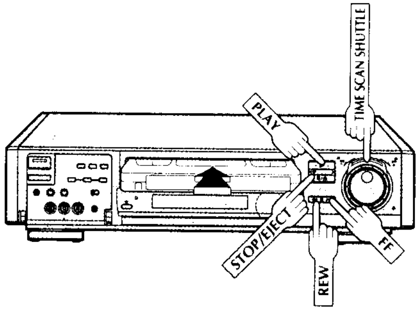
Press **CLOCK**.

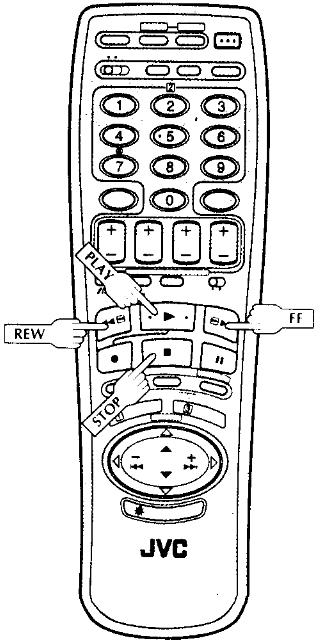
NOTES:

- *Auto Clock and Just Clock require a PDC signal, and will not operate with a VPS signal.*
- *Just Clock (when set to "ON") enables adjustment of the recorder's built-in clock every hour on the hour, except for 11 o'clock in the evening and midnight.*
- *Just Clock is not effective when . . .*
  - *the recorder's power is on (unless the recorder is tuned to the same channel position selected in the Clock Set screen)*
  - *the recorder is in the Timer mode.*
  - *a difference of more than 3 minutes exists between the built-in clock's time and the actual time.*
- *If Just Clock is set to "ON", the recorder's clock is automatically adjusted at the start/end of Summer Time.*
- *Auto clock setting and Just Clock may not function properly depending on the reception condition.*
- *During Manual clock setting, if the day and month data are invalid (such as 31st April), the month digits are cleared automatically and the day digits begin blinking. Input the correct data.*
- *If, in step 3 of the Manual clock setting procedure, the year digits are automatically cleared and the day digits begin blinking, it is possible that you have input 29th February for a non-leap year. Input the correct data.*

Basic Playback

Turn on the TV and select the VIDEO channel (or AV mode).





The easiest, most basic operation possible with your video recorder is tape playback. Already-recorded signals on a video tape are read by your video recorder and displayed on your TV just like a TV programme.

1 LOAD A CASSETTE

Make sure the window side is up, the rear label side is facing you and the arrow on the front of the cassette is point toward the recorder. Don't apply too much pressure when inserting.

- The recorder power comes on automatically and the counter is reset to 0:00:00.
- If the record safety tab has been removed, playback begins automatically.

2 FIND PROGRAMME START POINT

If the tape is advanced past the start point, press **REW** or turn the **TIME SCAN SHUTTLE** ring to the left.
To go forward, press **FF** or turn the **TIME SCAN SHUTTLE** ring to the right.

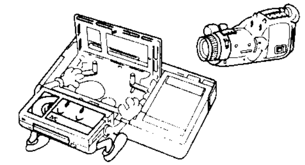
3 START PLAYBACK

Press **PLAY**. "BEST" appears blinking in the recorder's display panel for 5 seconds. (☞ pg. 17)

4 STOP PLAYBACK

Press **STOP** on the remote or **STOP/EJECT** on the recorder's front panel. Then press **STOP/EJECT** to remove the cassette.

Usable cassettes



- Compact VHS camcorder recordings can be played on this video recorder. Simply place the recorded cassette into a VHS Cassette Adapter and it can be used just like any full-sized VHS cassette.
- This video recorder can record on regular VHS and Super VHS cassettes. However, it will record and play back regular VHS signals only. It is not possible to play back a recorded Super VHS tape.

Playback Features

Take advantage of special functions possible with the recorder's controls or the remote control.

Still Picture/Frame-By-Frame Playback

1

PAUSE DURING PLAYBACK

Press **PAUSE**. If there is vertical jitter, use the **TV PROG.** buttons to correct the picture.

- During still picture, the sound from the previous 3 seconds (approx.) will be played back repeatedly (provided there was at least 6 seconds of normal playback prior to engaging the still picture mode). However, the TIME SCAN indicator will not light.
- The **TIME SCAN AUDIO** switch must be set to "ON", or the sound will not be heard.

2

ACTIVATE FRAME-BY-FRAME PLAYBACK

Turn the **JOG** dial to the right for forward frame-by-frame playback, or to the left for reverse frame-by-frame playback.

OR

Press **PAUSE**.

OR

Press **PUSH JOG** ◁ or ▷.

To resume normal playback, press **PLAY**.

Slow Motion

1

ACTIVATE SLOW-MOTION PLAYBACK

Turn the **TIME SCAN SHUTTLE** ring to the left or press **PUSH JOG** ◁ during playback to decrease speed in the forward direction. To play in reverse slow-motion (and in reverse play mode), continue to turn the **TIME SCAN SHUTTLE** ring to the left or press **PUSH JOG** ◁ after selecting all the forward direction slow-motion modes.

OR

During still picture, turn the **TIME SCAN SHUTTLE** ring to the right for forward slow motion, or to the left for reverse slow motion.

OR

During still picture, press and hold **PAUSE** for 2 seconds, then release. Press and release again to return to still picture.

OR

During still picture, press and hold **PUSH JOG** ◁ or ▷. Release to return to still picture.

To resume normal playback, press **PLAY**.

High-Speed (Turbo) Search

1

ACTIVATE HIGH-SPEED SEARCH

During playback or still picture, press **FF** for forward high-speed search, or **REW** for reverse high-speed search.

- For short searches, press and hold **FF** or **REW** for over 2 seconds. When released, normal playback resumes.

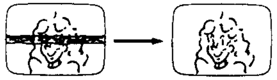
To resume normal playback, press **PLAY**.

NOTES:

- *Picture may not appear during search with an LP-recorded tape.*
- *In the search, still, or frame by frame playback mode, the picture may be distorted, and there may be a loss of colour.*

Manual Tracking

Your video recorder is equipped with automatic tracking control. During playback, you can override this and adjust the tracking manually by pressing the **TV PROG.** buttons.



1

OVERRIDE AUTOMATIC TRACKING

Press **SP/LP (/////)** on the remote to engage manual tracking.

2

ADJUST TRACKING MANUALLY

Press **TV PROG.** + or – to adjust tracking.

3

RETURN TO AUTOMATIC TRACKING

Press **SP/LP (/////)** on the remote to re-engage automatic tracking.

NOTE:

When a new tape is inserted, the recorder enters the automatic tracking mode automatically.

Instant ReView

Simply by pressing a single button, the recorder power comes on, rewinds, and begins playback of the last timer-recorded programme. If you have several programmes recorded, you can easily access any of them.

NOTE:

Before starting, make sure that the recorder is off and that the Timer mode is disengaged.

1

ACTIVATE INSTANT REVIEW

Press **REVIEW**. The recorder power comes on and the recorder searches for the index code indicating the start of the last timer-recorded programme. Once it's found, playback begins automatically.

The front display panel tells you how many programmes have been recorded. If you have, for example, 3 programmes, "REV 3" appears and blinks. To watch the first of the 3 programmes, press **REVIEW** three times. The recorder searches and begins playback automatically. You can access a programme as far as 9 index codes away from the current tape position.

NOTE:

Instant ReView is not possible while the recorder is in the Timer mode.

NTSC Playback

Your video recorder is equipped with NTSC circuitry that can play back NTSC tapes.

1

LOAD A CASSETTE

Insert a cassette recorded in NTSC.

2

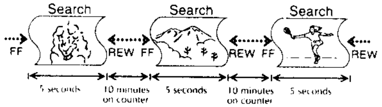
START PLAYBACK

Press **PLAY**. "NT" appears on the display panel.

- Some TVs shrink the picture vertically and place black bars at the top and bottom of the screen. This is not a malfunction on the part of either the video recorder or the TV.
- The picture may roll up and down. This can be corrected using the V-HOLD control found on some TVs. (This cannot be corrected if the TV does not have a V-HOLD control.)
- The counter and tape remaining time readings will be incorrect.
- During search, still, or frame-by-frame playback, the picture will be distorted, and there may be a loss of colour.
- Depending on the type of TV, the top and bottom portions of superimposed displays may be cut off during NTSC playback.

Scene Finder

This function helps you check contents of unlabeled recorded tapes at the touch of a single button.



NOTE:

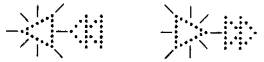
Scene Finder cannot be used when the recorder is in the Record mode.

1

ACTIVATE SCENE FINDER

Press **SCENE FINDER**. The recorder starts forward high-speed search for 5 seconds and then fast-forwards 10 minutes on the counter. This cycle is repeated until the end of the tape is reached.

- To start Scene Finder in the reverse direction, press **SCENE FINDER** and then turn the **TIME SCAN SHUTTLE** ring to the left (or press the remote's **REW** button) within 2 seconds. This cycle is repeated until the beginning of the tape.
- During Scene Finder, the following indications appear on the display panel:



2

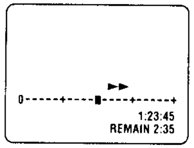
STOP SCENE FINDER

Press **STOP**.

NOTES:

- *During Scene Finder high-speed search, you can also hear the tape sound. During fast forward or rewind, you hear the current TV sound instead.*
- *During Scene Finder, the sound can be heard regardless of **TIME SCAN AUDIO** switch's setting.*
- *Scene Finder does not function during Index Search.*

Tape Position Indicator



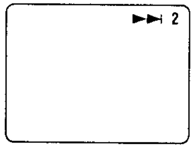
The tape position indicator appears on screen when, from the Stop mode, you press **FF**, **REW** or perform an Index Search. The position of "■" in relation to "0" (beginning) or "+" (end) shows you where you are on the tape.

"O.S.D." (☞ pg. 19) must be set to "ON", or the indicator will not appear.

NOTE:

Depending on the type of tape used, there may be times when the indication is not correct.

Index Search



Your recorder automatically marks index codes at the beginning of each recording. This function gives you quick access to any one of 9 index codes in either direction.

NOTE:

Before starting, make sure the recorder is in the Stop mode.

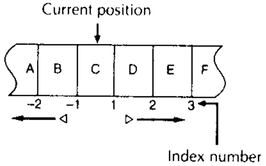
1

ACTIVATE INDEX SEARCH

Press **PUSH JOG** ◁ or ▷ (I◄◄ or ►►I). "I◄◄ 1" or "►►I 1" is displayed on screen and search begins in the corresponding direction.

- To access index codes 2 through 9, press **PUSH JOG** ◁ or ▷ repeatedly until the correct index number is displayed.

Ex.: To locate the beginning of B from the current position, press **PUSH JOG** ◁ twice.
To locate the beginning of D from the current position, press **PUSH JOG** ▷ once.



- When the specified index code is located, playback begins automatically.

Next Function Memory

You can set your recorder's power to go off automatically after the tape is fully rewound. Before starting, make sure the recorder is in the Stop mode.
For Automatic Power Off After Tape Rewind . . .
. . . press **REW**, then press **OPERATE** within 2 seconds.

NOTE:

*If you want the power to be turned off automatically when the counter reads "0:00:00" (instead of at the beginning of the tape), press **C.MEMORY** so that the "M" mark appears before pressing **REW**.*

Information On Colour System

You can also record SECAM signals, or play back a MESECAM tape on this recorder. When a MESECAM tape is played back, "MES" appears on the display panel. MESECAM is the designation for tapes with SECAM signals that have been recorded on a MESECAM-compatible PAL video recorder.

Tape Remaining Time

1

DISPLAY REMAINING TIME

Press **DISPLAY** until the time remaining on the tape appears.

- By pressing the **DISPLAY** button, you can change the display to show the counter reading, tape remaining time, or clock time.

NOTE:

Depending on the type of tape used, there may be times when the tape remaining time reading may not appear right away, or is not correct. "- - : - -" may sometimes appear, or the display may blink on occasion.

Counter Memory

Returns to the counter reading of "0:00:00" to conveniently find a specific place on the tape automatically.

1

SET COUNTER MEMORY

Press **C. RESET** during playback at a point you wish to locate later. The counter reads "0:00:00". Then press **C. MEMORY**, and "M" appears in front of the counter digits.

2

ACTIVATE COUNTER MEMORY

When you wish to return to the designated point, press **STOP** and then **REW** or **FF**.

- The tape rewinds or fast-forwards and stops at about 0:00:00 automatically.
- To cancel Counter Memory, press **C.MEMORY** again.

Remote A/B Code Switching

The remote control is capable of controlling two JVC video recorders independently; one set to respond to the remote control's A code control signals and another set to respond to B code control signals. The remote control is preset to send A code signals because your video recorder is initially set to respond to A code signals. You can easily modify your video recorder to respond to B code signals.

1

REMOVE POWER SUPPLY

Unplug the mains power cord from the mains outlet.

2

SET A/B CODE SWITCH

Set to B.

3

RE-SUPPLY POWER

Plug the mains power cord back into the mains outlet.

4

TURN THE RECORDER ON

Press **OPERATE** on the remote control. The recorder will now only respond to B code signals.

NOTE:

Some TV sets may malfunction in response to the B mode. If this happens, switch back to the A mode.

Soundtrack Selection

Your video recorder is capable of recording three soundtracks (HI-FI L, HI-FI R and NORM) and will play back the one you select.

During Playback

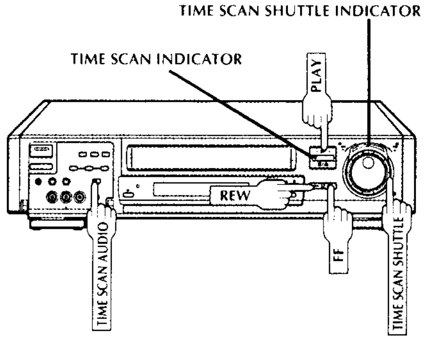
Pressing **AUDIO MONITOR** on the remote control changes the soundtrack being played back as follows:

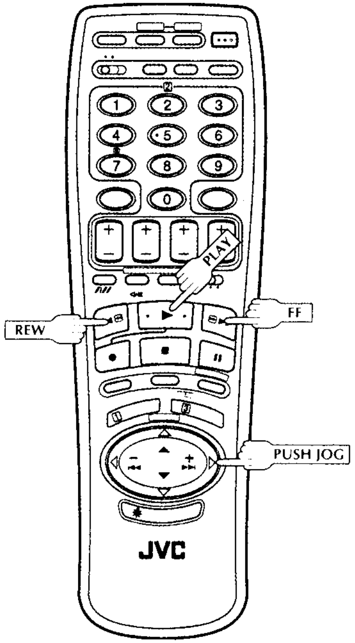
TRACK		USE
Recorder's Front Panel	On-Screen Display	
L + R	HI FI L 🔈 🔈 R	For Hi-Fi stereo tapes
L	HI FI L 🔈	For main audio of Bilingual tapes
R	HI FI 🔈 R	For sub audio of Bilingual tapes
NORM	NORM	For audio-dubbed tapes
L + R + NORM	HI FI NORM	For audio-dubbed tapes

NOTES:

- *"L + R" should normally be selected. In this mode, Hi-Fi stereo tapes are played back in stereo, and the NORM track is played back automatically for tapes with only normal audio.*
- *For instructions on recording stereo and bilingual programmes, refer to page 20.*
- *"O.S.D." must be set to "ON" or the on-screen displays will not appear (☞ pg. 19).*

TimeScan



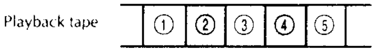


Your recorder is equipped with the TimeScan function. TimeScan allows noise free pictures to be displayed on your TV screen in the forward and reverse search modes. Audio will be played back at normal speed during any of the TimeScan modes (☞ pg. 15). TimeScan allows you to view a program in search mode while listening to the audio.

NOTES:

- *The **TIME SCAN AUDIO** switch must be set to "ON", or the sound will not be heard in TimeScan mode.*
- *The audio will not synchronize with the video in TimeScan modes.*
- *In Pause mode 3 seconds (approx.) of audio will be played back repeatedly.*
- *In TimeScan search modes some of the audio information will not be played so that the audio can keep up with the video.*

Audio signal during TimeScan



Sound of ①, ③ and ⑤ is heard.
Sound of ② and ④ is not heard.
Output audio signal is normal (monaural) sound.

Variable-Speed Search/ Reverse Play

1 ACTIVATE VARIABLE-SPEED SEARCH

During playback or still, turn the recorder's **TIME SCAN SHUTTLE** ring. It remains at that position even after you release it. Each time it passes a click position, the playback speed changes.
(Refer to the chart on pg 15 for playback speeds).

OR

During playback, press **PUSH JOG** ◁ or ▷.

- The more times you press, the faster the playback picture moves.
- To decrease speed, press the button for the opposite direction.
(Refer to the chart on pg 15 for playback speeds).

To resume normal playback, press **PLAY**.

TimeScan

Names of special-effects playback	Reverse				Forward		
	Search	Play	Slow-Motion	*Still	Slow-Motion	Play	Search
Speed SP	-9x -7x -5x -3x	-1x	-1/6x -1/18x	0	1/18x 1/6x	1x	2x 3x 5x 7x 9x
Speed LP	-7x -3x		-1/6x -1/18x	0	1/18x 1/6x	1x	2x 5x 9x
Recorder's Time Scan shuttle indicator	Orange		Green	Red	Green		Orange
Audio output	Audio is output.		Audio is not output.	Audio is output.	Audio is not output.	Audio is output.	

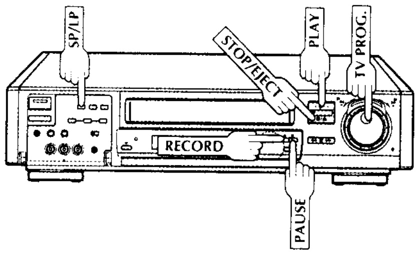
* Still mode cannot be engaged using the remote control's **PUSH JOG** button. In the Still mode, the TIME SCAN indicator does not light even though you can hear TimeScan audio.

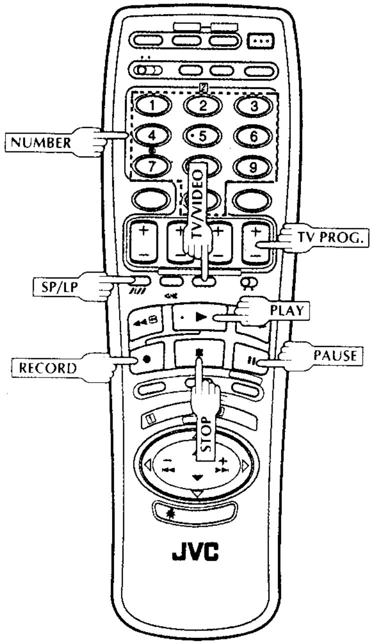
- The VCR's TimeScan indicator lights during TimeScan.
- The speed is shown during TimeScan in the upper right corner of the TV screen for approx. 5 seconds. (The display may be distorted.)
- To resume normal playback, press **PLAY**.
- When using the recorder's **TIME SCAN SHUTTLE** ring, the playback speed may not change depending on how far it is turned.
- Picture may be distorted at the position where the recording speed is switched.
- The picture may be noisy or there may be a loss of colour when you change the playback speed. (More noise will appear with LP recordings.)
- Noise may appear or the upper part of the picture may be distorted during still, frame-by-frame playback, 2x search of LP recordings, or depending on the tape being used.
- Picture may appear distorted in comparison to normal playback.
- In TimeScan mode there will be a time lag between the video and the audio and noise may appear in the audio signal.
- TimeScan sound quality will differ in comparison to normal playback.
- When the playback direction is reversed, it takes approximately 6 seconds until sound is heard.
- TimeScan does not work with NTSC playback. Picture will be monochrome with an LP-recorded MESECAM tape during TimeScan.

If you don't want to hear TimeScan audio, set the TIME SCAN AUDIO swtich on the recorder to OFF.

Basic Recording

TV signals being received by the recorder's built-in tuner can be recorded onto a video tape. You can "capture" a TV programme using your video recorder.





1 LOAD A CASSETTE

Insert a cassette with the record safety tab intact.

- The counter is reset to 0:00:00 and the recorder power comes on automatically.
- If your recorder is connected to the TV via AV connection, press **TV/VIDEO** to select the VIDEO mode.

2 CHOOSE A PROGRAMME

Press **TV PROG. +/–** or the **NUMBER** keys to select the channel you wish to record. The name of the station appears in the recorder's display panel for 5 seconds, followed by the channel position number. (Only stations that appear in the Confirmation screen will be displayed.)

- The **TV PROG.** dial can also be used to select a channel.

3 SET TAPE SPEED

Press **SP/LP**. Check the SP/LP indicator on the recorder display panel to confirm the selected tape speed.

4 START RECORDING

Press and hold **RECORD** and **PLAY** on the remote control, or press **RECORD** on the recorder.

B.E.S.T. takes place at the beginning of both the first SP and the first LP recording after inserting the cassette (☞ pg. 17).

5 PAUSE/RESUME RECORDING

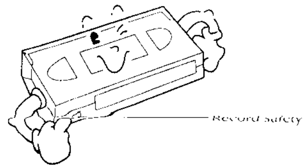
Press **PAUSE**. Press **PLAY** to resume recording.

6 STOP RECORDING

Press **STOP** on the remote control or **STOP/EJECT** on the recorder. Then press **STOP/EJECT** to remove the cassette.

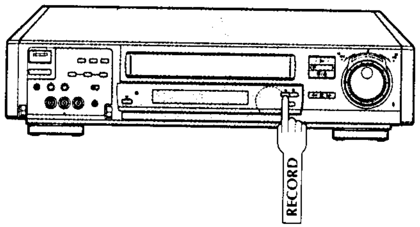
Accidental erasure prevention

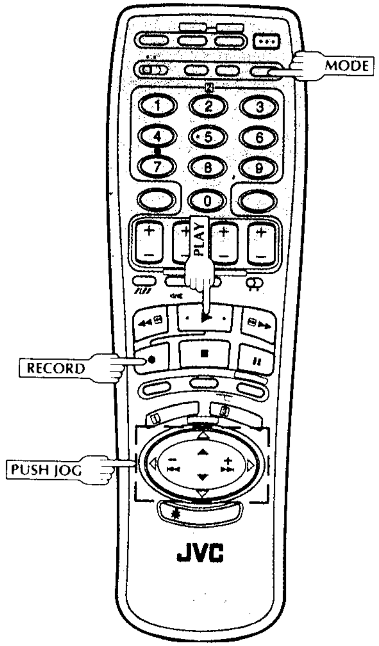
- To prevent accidental recording on a recorded cassette, remove its safety tab. To record on it later, cover the hole with adhesive tape.



B.E.S.T. Picture System

Turn on the TV and select the VIDEO channel (or AV mode).





The B.E.S.T. (Biconditional Equalised Signal Tracking) system checks the condition of the tape in use during recording and playback, and compensates to provide the highest-possible recording and playback pictures. The default setting for both recording and playback is "ON".

Recording

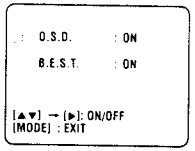
1 LOAD A CASSETTE

Insert a cassette with the record safety tab intact.

- The recorder power comes on automatically.

2 ACCESS MODE SELECT SCREEN

Press **MODE**. The O.S.D./B.E.S.T. screen appears.



O.S.D. : ON
B.E.S.T. : ON

[▲▼] → [▶]: ON/OFF
[MODE] : EXIT

3 CONFIRM B.E.S.T. STATUS

The default setting is "ON". If this is the case, go to step 4. If not, press **PUSH JOG▽** to place the pointer next to "B.E.S.T.", then press **PUSH JOG▷** to set to "ON".

4 CLOSE MODE SELECT SCREEN

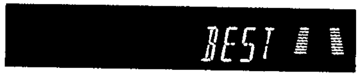
Press **MODE**.

5 START RECORDING

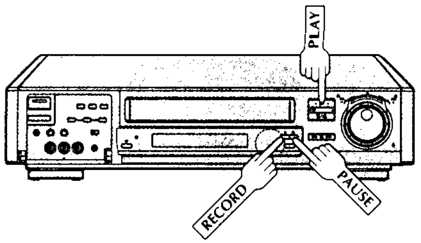
Press and hold **RECORD** and **PLAY** on the remote, or press **RECORD** on the recorder.

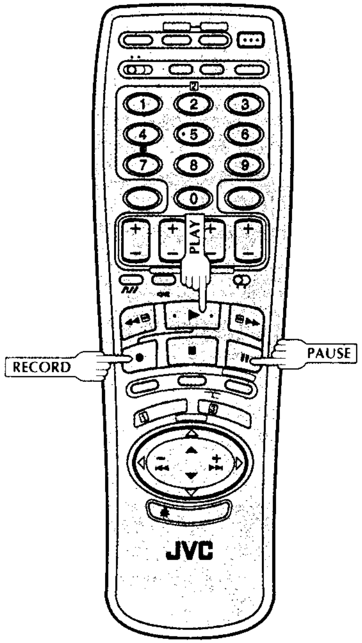
- The recorder spends approximately 7 seconds assessing the condition of the tape, then begins recording.
- When the "BEST" indicator begins blinking, that means adjustment is complete.

Display Panel Indication



As the tape check progresses, the "– –" marks on the display panel increase upward. Once the "BEST" indicator starts blinking, the check is complete.





NOTES:

- *The B.E.S.T. system works for both SP and LP modes only after a tape has been inserted and the Record mode is first initiated. It does not work during recording.*
- *In the case of timer recording, the B.E.S.T. system works before recording is initiated.*
- *Once the cassette is ejected, the B.E.S.T. data is cancelled. The next time the cassette is used for recording, B.E.S.T. is re-performed.*

ATTENTION:

*Since the B.E.S.T. system works before recording actually starts, there is a delay of approximately 7 seconds after **RECORD** and **PLAY** on the remote are pressed, or **RECORD** on the recorder is pressed. To make sure you record the desired scene or programme in its entirety, first perform the following steps:*

***1)** Press and hold **PAUSE** and **RECORD** to engage the RECORD PAUSE mode.*
- *The recorder then automatically checks the condition of the tape and, after approximately 7 seconds, re-enters RECORD PAUSE.*

***2)** Press **PLAY** to start recording.*
- *If you want to bypass the B.E.S.T. system and begin recording immediately, set "B.E.S.T." to "OFF" in step **3** on page 17.*

Playback

The recorder assesses the quality of the tape once you initiate playback.

When watching a tape recorded with "B.E.S.T." set to "ON", it is recommended that you leave B.E.S.T. on during playback as well.

1 START PLAYBACK

Press **PLAY**.

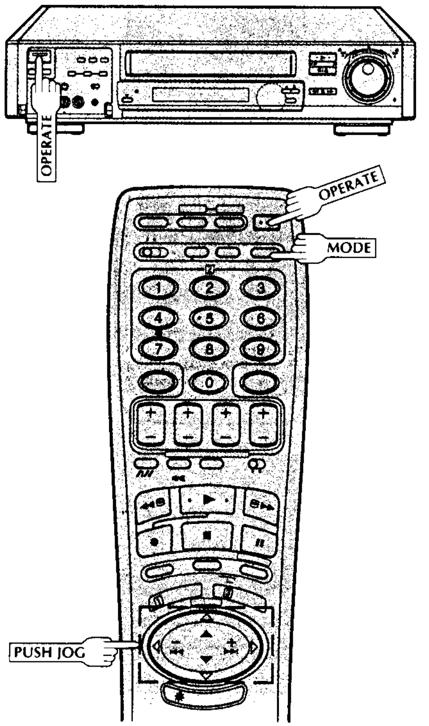
- The recorder adjusts the playback picture quality based on the quality of the tape in use.
- B.E.S.T. is active during Auto Tracking. "BEST" appears blinking on the recorder's display panel.

NOTES:

- *When watching a rental tape, or one recorded on another video recorder, set B.E.S.T. to your preference by performing steps **2** through **4** on page 17.*
- *"BEST" only appears at the beginning of automatic tracking. Even though it doesn't appear after that, the B.E.S.T. function is operative.*

On-Screen Displays

Turn on the TV and select the VIDEO channel (or AV mode).



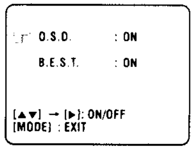
You can choose whether or not to have various operational indicators appear on screen, by setting this function ON or OFF. Messages appear in the language you selected during Auto Channel Set (☞ pg. 5).

1 TURN ON THE RECORDER

Press **OPERATE**.

2 ACCESS MODE SELECT SCREEN

Press **MODE**. The O.S.D./B.E.S.T. screen appears.


☞ O.S.D. : ON

B.E.S.T. : ON

[▲▼] → [▶]: ON/OFF
[MODE] : EXIT

3 SELECT MODE

The pointer should already be next to "O.S.D.". If not, press **PUSH JOG**△▽ to place it there.

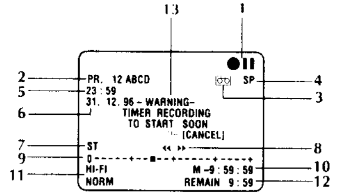
4 ENABLE/DISABLE ON-SCREEN DISPLAY

The default setting is "ON", so if you want on-screen displays, leave the setting as is and go to step **5**. If you don't want the displays to appear, press **PUSH JOG** ▷ to set "O.S.D." to "OFF".

5 CLOSE MODE SELECT SCREEN

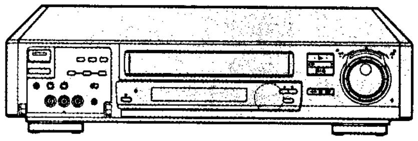
Press **MODE**.

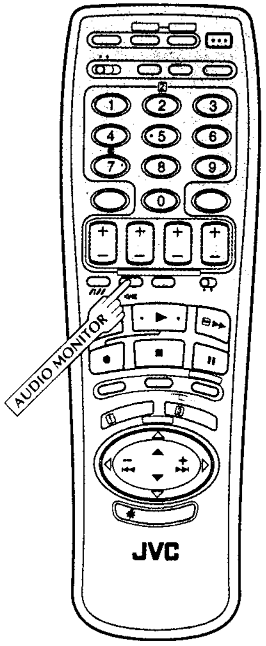
The superimposed indication on the TV screen tells you what the recorder is doing.



1– Operation mode indicators
2– Channel position number and station name/Aux. indicator (AUX1, AUX2 or F-AUX)
3– Cassette loaded mark
4– Tape speed SP/LP/EP (EP is for NTSC playback only)
5– Clock display
6– Current day/month/year
7– Type of Broadcast (NICAM appears only with E939EH.)
8– Tape direction
9– Tape position indicator (☞ pg. 12)
10– Counter display (including Counter Memory indicator)
11– Audio mode display
12– Tape remaining time indicator
13– Timer warning display

Recording Features





Receiving Stereo And Bilingual Programmes

Your recorder is equipped with a Sound-Multiplex decoder (A2) and, if you own the E939EH, a Digital stereo sound decoder (NICAM) as well, making reception of stereo and bilingual broadcasts possible.

When the channel is changed, the type of broadcast being received will be displayed on the TV screen for a few seconds.

Type of Broadcast Being Received	On-screen Display
A2 Stereo	ST
A2 Bilingual	BIL
Regular Monaural	(none)
*NICAM Stereo	ST NICAM
*NICAM Bilingual	BIL NICAM
*NICAM Monaural	NICAM

*Available with E939EH only.

- To listen to a stereo programme, press **AUDIO MONITOR** until "L" and "R" appear on the front display panel.
- To listen to a bilingual programme, press **AUDIO MONITOR** until either "L" or "R" appears on the front display panel (as required).
- To listen to the Standard (regular monaural) audio while receiving a NICAM broadcast, press **AUDIO MONITOR** until "NORM" appears on the front display panel. (E939EH only)

NOTE:

"O.S.D." must be set to "ON" or the on-screen displays will not appear (☞ pg. 19).

To Record Stereo And Bilingual Programmes (A2)

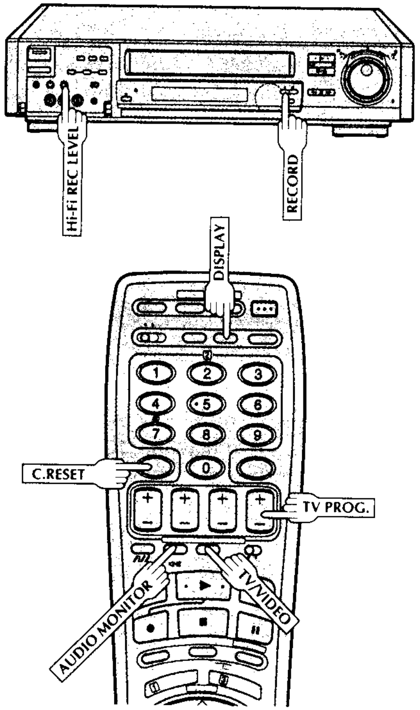
- Stereo programmes are automatically recorded in stereo on the Hi-Fi audio track (with the normal audio track recording mixed L and R channel sound).
- Bilingual programmes are automatically recorded in bilingual on the Hi-Fi audio track. The main soundtrack will be recorded on the normal audio track.

NOTES:

- *If the quality of stereo sound being received is poor, the broadcast will be received in monaural with better quality.*
- *Before playing back a programme recorded in stereo, or a bilingual programme, refer to "Soundtrack Selection" (☞ pg. 13).*

To Record NICAM Stereo And Bilingual Programmes (E939EH only)

- The NICAM audio programme will be recorded on the Hi-Fi audio track, and the Standard audio programme on the normal audio track.



Hi-Fi Audio Recording LEVEL Control

In most cases, setting the Hi-Fi audio recording level control to the center position will provide satisfactory results. If necessary, you can adjust the Hi-Fi audio recording level more precisely by reffering to the audio level indicator on the front panel.

1 ADJUST AUDIO RECORDING LEVEL

Turn **Hi-Fi REC LEVEL** in either direction.

- When the level indicator lights up to or near 0dB with the loudest signal being applied, the recording level is optimum.

NOTES:

- *Make sure that the "HI-FI L+R" position is selected with the* ***AUDIO MONITOR*** *button.* ☞ *p. 13*
- *Noise will increase if the recording level is too low, while distortion will increase if the level is too high.*

Record One Programme While Watching Another

If your recorder is connected to the TV via AV connection, . . .
. . . press **TV/VIDEO**. The recorder's VIDEO indicator and the TV broadcast being recorded disappear.

1 SELECT CHANNEL TO WATCH

Once recording is in progress, all you need to do is to set the channel controls on the TV for the station you wish to view.

- The programme selected with the TV's channel controls appears on the TV screen while the one selected with the **TV PROG**. button is recorded on the tape.
- If a decoder is connected to the recorder (☞ pg. 4), you can select a scrambled channel as well with the TV channel controls.

Elapsed Recording Time Indication

You can check the exact time of a recording.

1 SET COUNTER DISPLAY

Press **DISPLAY** until a counter reading appears on the dispay panel.

2 RESET COUNTER

Press **C. RESET** before starting recording or playback.

- The counter is reset to "0:00:00" and shows the exact elapsed time as the tape runs.

Instant Timer Recording (ITR)

This easy method lets you record for from 30 minutes to 6 hours (selectable in 30-min. increments), and shuts the recorder off after recording is finished.

1 START RECORDING

Press **RECORD** on the recorder.

2 ENGAGE ITR MODE

Press **RECORD** again. ITR blinks and 0:30 appears on the front display panel.

3 SET RECORDING DURATION

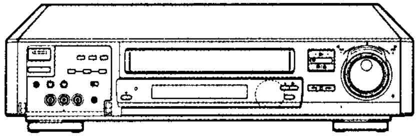
If you want to record for more than 30 minutes, press **RECORD** to extend the time. Each press extends *recording time by 30 minutes.*

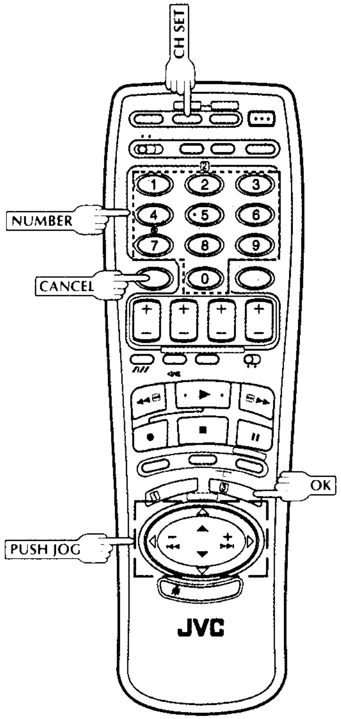
NOTE:

*You can only perform ITR using the **RECORD** button on the recorder's front panel.*

Information On ShowView

Turn on the TV and select the VIDEO channel (or AV mode).





With ShowView, timer programming is greatly simplified because each TV programme has a corresponding code number which your recorder is able to recognise.

NOTE:

"Guide Prog. Number" (GUIDE PROG) refers to the assigned TV station numbers, according to broadcast area, for ShowView timer recording.

IMPORTANT

Perform the following procedure after the channel setting steps on pages 5 and 38 – 39, and after the Clock Set procedure on page 7.
After setting the Guide Prog. Numbers, the station names and channel positions may be incorrect if you stored or skipped channels. In this case, re-perform Guide Prog. Number setting.

Guide Prog. Number Set

1 MAKE LIST OF STORED STATION NAMES AND CHANNEL POSITIONS

(Ex.)

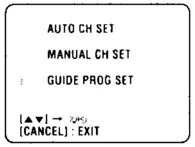
Channel position	Station name
1	ARD
2	ZDF
3	WDR

2 ACCESS CH. SET MODE MENU SCREEN

Press and hold **CH SET** for over 2 seconds. The Language screen appears. Press **OK** to access the Ch. Set Mode Menu screen.

3 SELECT MODE

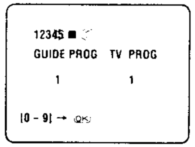
Press **PUSH JOG**△▽ to place the pointer next to "GUIDE PROG SET", then press **OK**. The Guide Prog. Set screen appears.



AUTO CH SET
MANUAL CH SET
GUIDE PROG SET
[▲▼] → (OK)
[CANCEL] : EXIT

4 ENTER SHOWVIEW NUMBER

Press **OK**, and a cursor appears above "GUIDE PROG". Then, using the **NUMBER** keys, input the ShowView number (found in most TV listings) of a program scheduled to be broadcast on each station on the list from step **1**, starting at the top. If you enter the wrong number, press **CANCEL** and input the correct number.



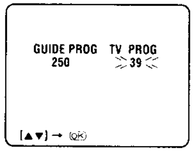
12345 ■
GUIDE PROG TV PROG
1 1
[0 – 9] → (OK)

When entering a ShowView number for ARD

5 ENTER CHANNEL POSITION NUMBER

Press **OK** and the display under "TV PROG" begins blinking.

If the blinking number under "TV PROG" agrees with the channel position . . .
. . . press **OK**.
If the numbers do not agree . . .
. . . input the channel position using **PUSH JOG**△▽ or the **NUMBER** keys, then press **OK**.



GUIDE PROG TV PROG
250 39
[▲▼] → (OK)

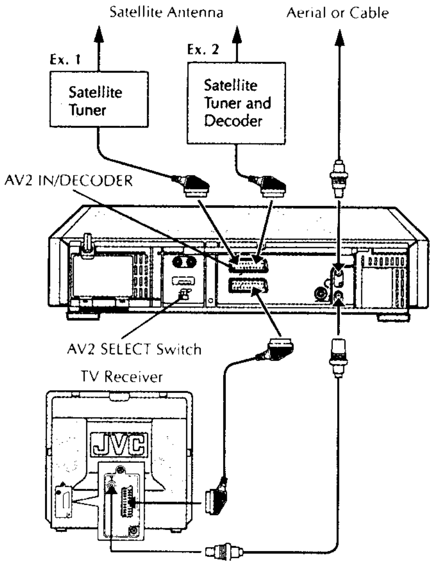
- If you input the ShowView number of a program that has already aired, "ERROR" appears on screen for a few seconds. Input the correct ShowView number.
- Repeat steps **4** and **5** as necessary.

6 CLOSE MENU

Press **CH SET** and selection is complete.

If you already know the Guide Prog. number for a station . . .
1– After step **3**, press **PUSH JOG**▷.
  - The GUIDE PROG number begins blinking.
2– Enter the Guide Prog. number using the **NUMBER** keys or **PUSH JOG**△▽, then press **PUSH JOG**▷ .
  - The TV PROG number begins blinking.
3– Enter the channel position using the **NUMBER** keys or **PUSH JOG**△▽, then press **PUSH JOG**◁ .
  - Repeat **2** and **3** as necessary.
4– Press **CH SET**

When Using A Satellite Tuner



Preparation
1– Connect the satellite tuner to the AV2 IN/DECODER connector on the rear of your recorder.
2– Set the **AV2 SELECT** switch to "AV2".

To Record Satellite Broadcasts . . .
1– Select the appropriate channel on the satellite tuner.
2– Press **NUMBER** key "0" to set your recorder's input mode to "AUX2".
3– Start recording (☞ pg. 16, steps **3** – **6**).

To Record Satellite Broadcasts Using ShowView Timer Recording . . .
1– Perform Guide Prog. Number setting.
  - In step **5** in the left column, press **NUMBER** key "0" to set "TV PROG" to "AUX2".
2– Perform ShowView Timer Recording (☞ pg. 24).

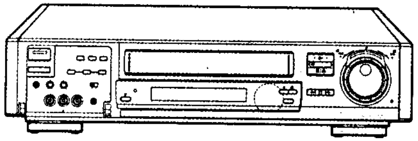
To Record Satellite Broadcasts Using Regular Timer Recording . . .
1– In step **6** on page 26, press **TV PROG. +/–** to set the channel position to "AUX2".

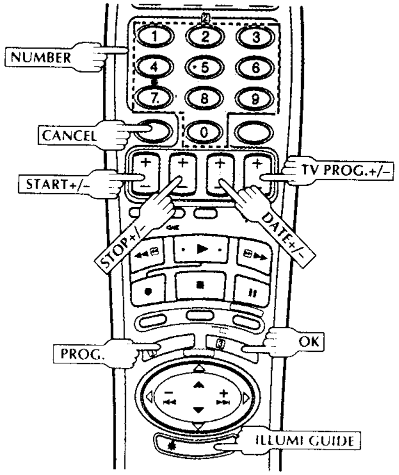
NOTES:

- *When timer-recording a satellite programme, first set the satellite tuner to the appropriate channel before the selected programme begins and then set the satellite tuner's timer. If your satellite tuner does not have a timer, leave it switched on.*
- *If your recorder's front panel VIDEO and/or AUDIO connectors are being used, they take priority and "AUX2" cannot be selected. Make sure no cables are connected to the front panel connectors when performing this procedure.*

ShowView Timer Recording

Before performing ShowView timer recording:
- Be sure to read "Information On ShowView" (☞ pg. 22).
- Insert a cassette with the safety tab in place. The recorder will come on automatically.
- Turn on the TV and select the VIDEO channel (or AV mode).





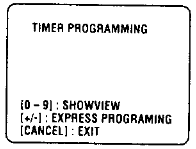
When Using The Illumi-Guide Feature
- Buttons light or blink on the remote control for approximately 10 seconds. If the button or buttons extinguish during timer programming, press **ILLUMI GUIDE** and the button or buttons previously lit or blinking come back on. If the button or buttons do not re-light or start blinking again, press **CANCEL** and re-perform the timer programming procedure from the beginning.
- *If for some reason the remote control's signal is not received* by the video recorder, press **CANCEL** and re-perform the timer programming procedure from the beginning.

During ShowView and regular timer programming, the Illumi-Guide feature tells you which button on the remote control must be pressed next by lighting it up. To use this feature, press **ILLUMI GUIDE** before performing step **1**. (**PROG.**, **REW**, **PLAY**, **FF** light up at this time.)

If you aren't going to use the Illumi-Guide feature, go directly to **step 1**.

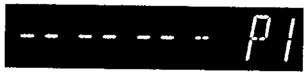
1 ACCESS TIMER PROGRAMMING SCREEN

Press **PROG**.


TIMER PROGRAMMING

[0 – 9] : SHOWVIEW
[+/-] : EXPRESS PROGRAMING
[CANCEL] : EXIT

The front display panel looks like this:

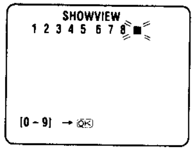


- If you are using the Illumi-Guide feature, the following buttons will light up: **NUMBER** keys (0–9), **START +/–**, **STOP +/–**, **DATE +/–**, **TV PROG. +/–**, and **CANCEL**.

2 ENTER SHOWVIEW NUMBER

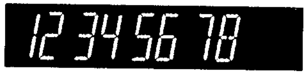
Press the **NUMBER** keys to enter the ShowView number of a programme you wish to record.

- If you make a mistake, press **CANCEL** and then input the correct number.

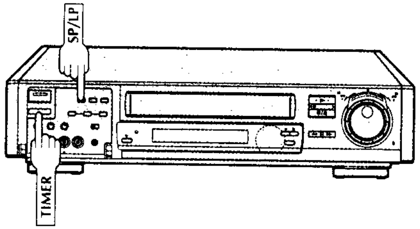

SHOWVIEW
1 2 3 4 5 6 7 8 ■

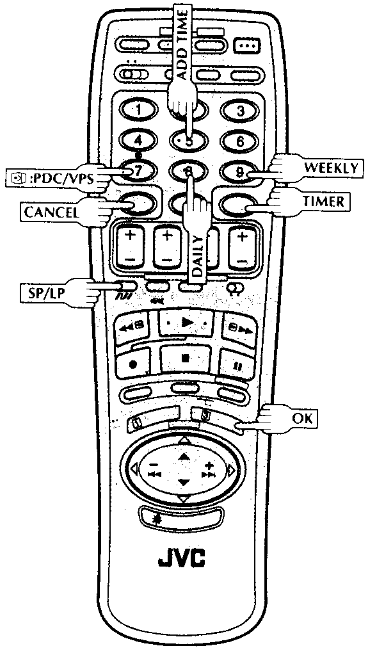
[0 – 9] → OK

The ShowView number you enter appears on the front display panel:



- If you are using the Illumi-Guide feature, **OK** blinks when the following buttons are lit: **NUMBER** keys (0-9) and **CANCEL**.

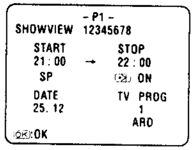




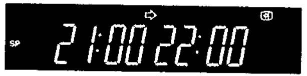
3 ACCESS SHOWVIEW PROGRAM SCREEN

Press **OK**, and the ShowView Program screen appears (if you're just starting out, "P1" appears).

- If the number you entered is invalid, "ERROR" appears. Press **CANCEL** and input a valid ShowView number.


– P1 –
SHOWVIEW 12345678
START 21 : 00 → STOP 22 : 00
SP ON
DATE 25. 12
TV PROG 1 ARD
OK:OK

The front display panel looks like this:



- If you are using the Illumi-Guide feature, **OK** blinks.
- If you're not receiving PDC/VPS, press **NUMBER** key "7" to set ⓥ to "OFF" (☞ pg. 28).

4 SET TAPE SPEED

Press **SP/LP** to set the tape speed.

5 RETURN TO NORMAL SCREEN

Press **OK**.

- Repeat steps **1**–**5** for each additional programme.

6 ENGAGE RECORDER'S TIMER MODE

Press **TIMER**.

NOTE:

*For safety, your recorder disables all other functions while in the Timer mode. If you want to use the recorder but its Timer mode is engaged, press **TIMER** and all other functions are operable. To re-engage the timer, press **TIMER**.*

To Delay The Stop Time . . .
. . . press **ADD TIME** (**NUMBER** Key "5") after pressing **OK** in step **3**. Each time you press, the Stop time is delayed by 5 minutes (meaning that 5 minutes of recording time is added). You can easily compensate for anticipated programme schedule delays this way.

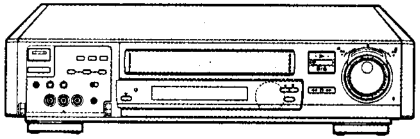
To Timer-Record Weekly Or Daily Serials . . .
. . . after pressing **OK** in step **3**, press **WEEKLY** (**NUMBER** key "9") for weekly serials or **DAILY** (**NUMBER** key "8") for daily serials (Monday–Friday).

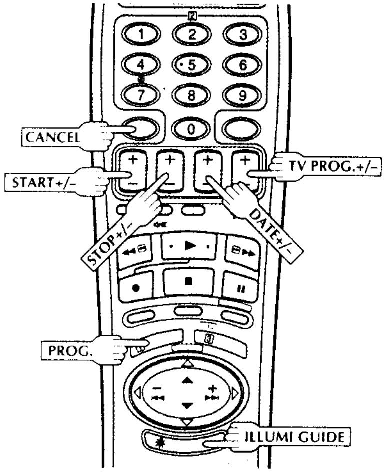
You can programme this recorder to timer-record as many as 8 programmes. If you try to programme the recorder to record a ninth, "PROGRAM FULL" appears on screen and "FULL" appears on the front display panel. To record the extra programme, you must first cancel any unnecessary programmes (☞ pg. 28).

Regular Timer Programming

Remember, the clock must be set before you can programme the timer (☞ pg. 7).

Before performing the following steps:
- Insert a cassette with the safety tab in place. The recorder will come on automatically.
- Turn on the TV and select the VIDEO channel (or AV mode).





When Using The Illumi-Guide Feature
- Buttons light or blink on the remote control for approximately 10 seconds. If the button or buttons extinguish during timer programming, press **ILLUMI GUIDE** and the button or buttons previously lit or blinking come back on. If the button or buttons do not re-light or start blinking again, press **CANCEL** and re-perform the timer programming procedure from the beginning.
- If for some reason the remote control's signal is not received by the video recorder, press **CANCEL** and re-perform the timer programming procedure from the beginning.

If you don't know the SowView number for the programme you wish to record, use the following procedure to set your recorder to timer-record the programme.
Or you can use the Illumi-Guide feature, where the remote control tells you which button to press next by lighting it up. To use the Illumi-Guide feature, press **ILLUMI GUIDE** before performing step **1**. (**PROG.**, **REW**, **PLAY**, **FF** light up at this time.)

If you aren't going to use the Illumi-Guide feature, go directly to step **1**.

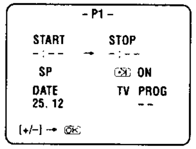
1 ACCESS TIMER PROGRAMMING SCREEN

Press **PROG.**

- If you are using the Illumi-Guide feature, the following buttons will light up: **NUMBER** keys (0–9), **START +/–**, **STOP +/–**, **DATE +/–**, **TV PROG. +/–**, and **CANCEL**.

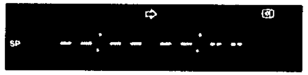
2 ACCESS PROGRAMME SCREEN

Press **START +/–**. (If you're just starting out, "P1" appears.)



```
          - P1 -
START            STOP
-:--      →      -:--
 SP             ⊡ ON
DATE            TV PROG
25. 12             --
[+/–] → OK
```

The front display panel looks like this:

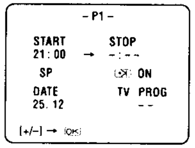


- If you are using the Illumi-Guide feature, the following buttons will light up: **START +/–**, **STOP +/–**, **DATE +/–**, and **TV PROG. +/–**.

3 ENTER PROGRAMME START TIME

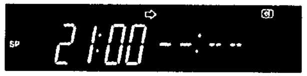
Press **START +/–** to enter the time you want recording to start.

- Press and hold **START +/–** to move in 30-minute increments, or press and release repeatedly to move 1 minute at a time.

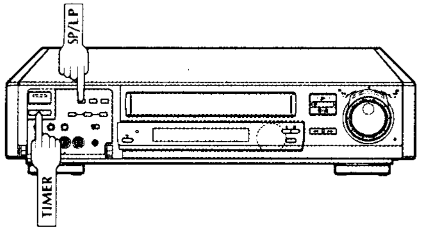


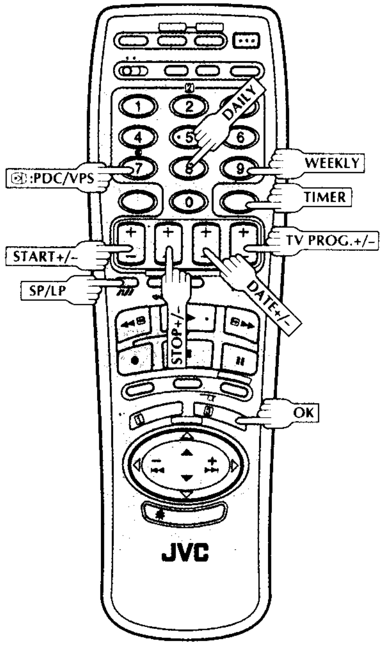
```
          - P1 -
START            STOP
21 : 00   →      -:--
 SP             ⊡ ON
DATE            TV PROG
25. 12             --
[+/–] → OK
```

The front display panel looks like this:



- If you are using the Illumi-Guide feature, the following buttons remain lit: **START +/–**, **STOP +/–**, **DATE +/–**, and **TV PROG. +/–**.





NOTES:
- *To timer-record from a satellite tuner connected to your recorder's AV2 IN/DECODER connector, press **TV PROG. +/–** in step **6** above to set the channel position to "AUX2".*
- *You can programme this recorder to timer-record as many as 8 programmes. If you try to programme the recorder to record a ninth, "PROGRAM FULL" appears on screen and "FULL" appears on the front display panel. To record the extra programme, you must first cancel any unnecessary programmes (☞ pg. 28).*

4 ENTER PROGRAMME STOP TIME

Press **STOP +/–** to enter the time you want recording to stop.

- If you are using the Illumi-Guide feature, the following buttons remain lit: **START +/–**, **STOP +/–**, **DATE +/–**, and **TV PROG. +/–**.

5 ENTER PROGRAMME DATE

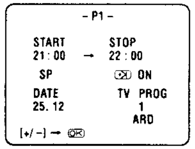
Press **DATE +/–**. (The current date appears on screen. The date you enter appears in its place.)

- If you are using the Illumi-Guide feature, the following buttons remain lit: **START +/–**, **STOP +/–**, **DATE +/–**, and **TV PROG. +/–**.

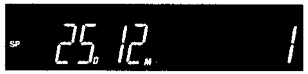
6 ENTER CHANNEL POSITION

Press **TV PROG. +/–**.

- If you're not receiving PDC/VPS, press **NUMBER** key "7" to set ⊡ to "OFF" (☞ pg. 28).



```
          - P1 -
START            STOP
21 : 00   →   22 : 00
 SP             ⊡ ON
DATE            TV PROG
25. 12             1
                  ARD
[+/–] → OK
```



- If you are using the Illumi-Guide feature, **OK** blinks when the following buttons are lit: **START +/–**, **STOP +/–**, **DATE +/–**, and **TV PROG. +/–**.

7 SET TAPE SPEED

Press **SP/LP** to set the tape speed.

8 RETURN TO NORMAL SCREEN

After confirming all information is correct, press **OK** and the normal screen appears.

- Repeat steps **1–8** for each additional programme.

9 ENGAGE RECORDER'S TIMER MODE

Press **TIMER**.

To Timer-Record Weekly Or Daily Serials . . .
. . . anytime during steps **2** through **8**, press **WEEKLY** (**NUMBER** key "9") for weekly serials or **DAILY** (**NUMBER** key "8") for daily serials (Monday–Friday).

Check And Cancel Programmes

1 ACCESS PROGRAMME SCREEN

Press **PROG CHECK.** Each time you press the next program's information appears.

- Press **OK** and watch the front display panel as the Start and Stop times, the Date and the Channel Position appear.
- If the recorder is turned on and the TV is set to its VIDEO mode, you can check program information on screen as well.

If All Information Is Correct . . .
. . . programming is completed.

If You Wish To Revise Data . . .
. . . with the recorder's power turned on, go to step **2**.

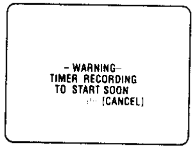
If You Wish To Cancel A Program . . .
. . . with the recorder's power turned on, press **CANCEL**. All information you input is deleted.

2 REVISE PROGRAMME INFORMATION

Input the appropriate data using the **START +/–**, **STOP +/–**, **DATE +/–** and **TV PROG. +/–** buttons on the remote control.

Timer Warning

If you have programmed your recorder to timer-record a programme or a series of programmes, a warning appears on screen to tell you that the recording is to start in 5 minutes.



– WARNING–
TIMER RECORDING
TO START SOON
[CANCEL]

NOTES:

- *The warning only appears if you're not in the Timer mode at that time.*
- *If this recorder is being used as the player for tape dubbing, the warning screen is recorded on the tape in the other video recorder.*

The warning blinks for the entire 5 minutes leading up to the start of timer recording. To clear the display, press **CANCEL**.

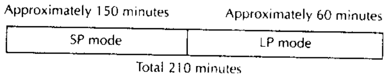
Auto SP/LP Timer

If, when recording in SP mode, there is not enough tape to record the entire programme, the recorder automatically switches to LP mode to allow complete recording.

1 ENGAGE AUTO SP/LP TIMER

Press **AUTO SP/LP TIMER** on the recorder front panel. The AUTO SP/LP TIMER indicator lights "green".

For Example . . .
Recording a program of 210 minutes in length onto a 180-minute tape



Make sure you press **AUTO SP/LP TIMER** before performing timer programming.

NOTES:

- *The Auto SP/LP Timer feature is not available during ITR (Instant Timer Recording), and the feature will not work properly with any tapes longer than E-180 as well as some tapes of shorter lenghs.*
- *Even if, in step **1**, you press **AUTO SP/LP TIMER** and the indicator lights "green", that doesn't mean that the recorder will automatically change from SP to LP mode during the course of the recording. Watch the tape later to confirm.*
- *If you have programmed the recorder to timer-record 2 or more programs, the second programme and those thereafter may not fit on the tape if you engage the Auto SP/LP Timer mode. In this case, make sure the mode is not engaged, then set the tape speed manually during timer programming.*
- *There may be some noise at the point on the tape where the recorder switches from SP to LP mode.*
- *If you perform timer recording with both PDC/VPS and the Auto SP/LP Timer activated, and the programme goes beyond its originally scheduled length, there may be times when the programme cannot be recorded in its entirety.*

PDC/VPS Recording

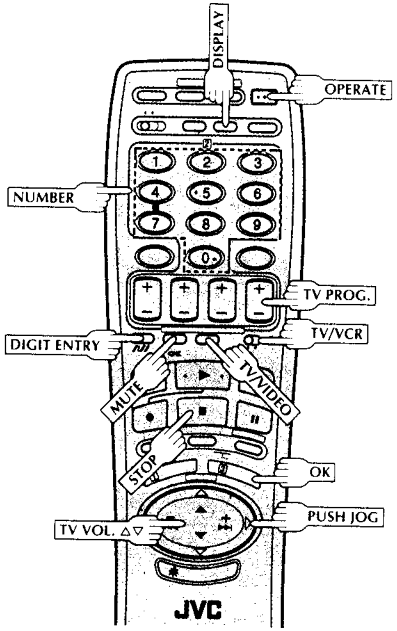
Now available from some TV stations, PDC (Programme Delivery Control) and VPS (Video Programme System) are service designed to assure safe, accurate timer recording. With this system, special code signals are transmitted together with the audio/video signals. These code signals control your video recorder and have precedence over advertised times you preset in the timer. This means that your recorder will start and stop recording when the preset TV programmes actually start and end — even if the broadcast time of a preset TV programme is changed.

To Use PDC/VPS Service . . .
The default setting for PDC/VPS is "ON". To cancel PDC/VPS, press **NUMBER** key "7" so that "OFF" is displayed on screen during ShowView or regular timer programming.

NOTES:

- *When you manually enter programmes (regular timer programming), set the start time (PDC or VPS time) exactly as advertised in the TV listing. A different time than advertised will result in no recording.*
- *PDC/VPS recording is also possible when a satellite tuner or a cable system is connected to AV2 IN on your recorder.*

Multi-Brand Remote Control



CODE	TV BRAND NAME
01	JVC
02	BRANDT, NORDMENDE, SABA, TELEAVIA, TELEFUNKEN, THOMSON
03	FERGUSON
04	PHILIPS
05	BLAUPUNKT, GRUNDIG
06	SONY
07	PANASONIC
08	GRAETZ, ITT, LUXOR, SALORA, SELECO
09	MIVAR
10	HITACHI
11	TOSHIBA
12	MITSUBISHI
13	FINLUX
14	NOKIA

Your remote control can operate the basic functions of your TV set. In addition to JVC TVs, other manufacturer's TVs can also be controlled by setting the appropriate switch on the remote control.

Before you start . . .
- Turn on the TV using its remote control.
- Set the remote control's **TV/VCR** switch to TV.

NOTE:

*If your TV is a JVC, you don't have to set the code in step **1**. Go to step **2**.*

1 SET TV BRAND CODE

Refer to the chart below. While holding down **OPERATE**, enter your TV's brand code using the **NUMBER** keys, then press **STOP**.

- You don't have to repeat this step until you replace your remote control's batteries.

2 TRY OPERATING TV

Press **OPERATE** on the remote to turn the TV off. If it goes off, try other operations.

- The **OPERATE** button, **TV/VIDEO** button, **TV PROG. +/–** button, **TV VOL.** △▽ button and **MUTE** button on the remote can all be used to operate the TV.
- To return the remote to video recorder control, set its **TV/VCR** switch to VCR.

IMPORTANT

Although the provided remote control unit is compatible with JVC televisions, as well as many other models, it may not work with your TV, or in some instances, may have limited function capability.

Control Your TV Using Additional Buttons

The **NUMBER** keys on the remote can also be used to select the TV's channel by setting the remote control to the TV mode.

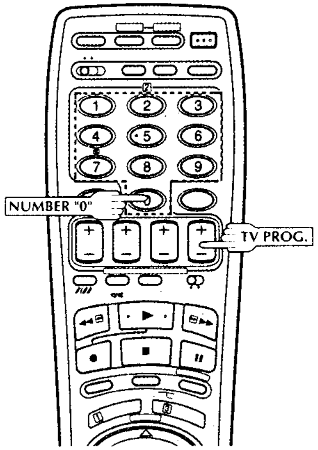
1. Set the **TV/VCR** switch to TV.
2. Use the **NUMBER** keys, and the **DIGIT ENTRY** (////) button, the **PUSH JOG** button, the **DISPLAY** button or the **OK** button to select the TV's channel.

- With televisions under Code 01, 03, 04, 06, 07, 10 or 11, the **DIGIT ENTRY** button corresponds to the 1-digit/2-digit entry switching button (often labelled – /– –) of your TV's remote control.
- With televisions under Code 01, 08 or 09, the **PUSH JOG** ◁ button corresponds to the 10 + button, and the **PUSH JOG** ▷ button corresponds to the 20 + button of your TV's remote control.
- With televisions using Code 09, the **DISPLAY** button corresponds to the 30 + button.
- With televisions using Code 06, the **OK** button corresponds to the ENTER button of your TV's remote control.

NOTE:

The way these buttons are used is determined by your TV. Use these buttons as instructed for your TV's remote control.

Edit To Or From Another Video Recorder


NUMBER "0"
TV PROG.

You can use your video recorder as the source player or the recording deck.

1 MAKE CONNECTIONS

Connect the player's AUDIO/VIDEO OUT connector to the recorder's AUDIO/VIDEO IN connector.

When Using Your Video Recorder As The Source Player . . .

. . . connect its AV1 IN/OUT connector to the recording deck.

When Using Your Video Recorder As The Recording Deck . . .

. . . you can use the AV1 IN/OUT or AV2 IN connectors.

2 SET RECORDING DECK'S INPUT MODE

Set to AUX. With this video recorder, press **NUMBER** Key "0" or **TV PROG.** to select depending on the connector being used — "AU 1" for the AV1 IN/OUT connector, or "AU 2" for the AV2 IN connector.

- When using the AV2 IN connector, make sure the **AV2 SELECT** switch is set to "AV2".

3 START SOURCE PLAYER

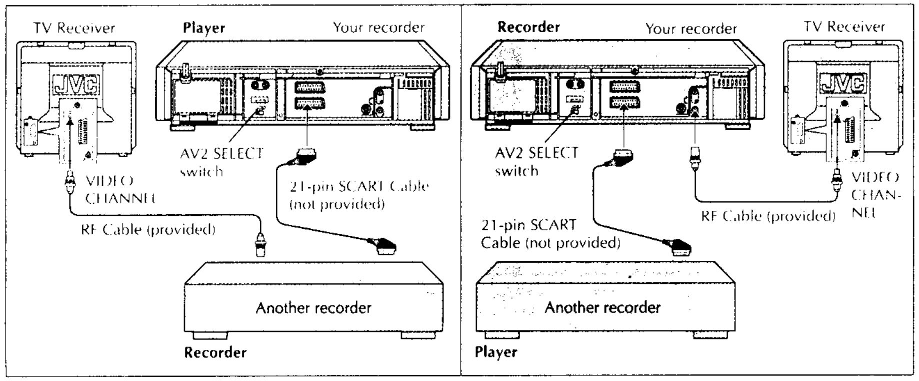
Engage its Play mode.

4 START RECORDING DECK

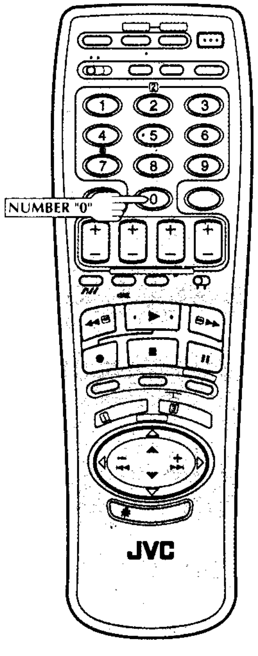
Engage its Record mode.

NOTE:

All necessary cables can be obtained from your dealer.


TV Receiver
Player
Your recorder
AV2 SELECT switch
VIDEO CHANNEL
21-pin SCART Cable (not provided)
RF Cable (provided)
Another recorder
Recorder
Recorder
Your recorder
TV Receiver
AV2 SELECT switch
VIDEO CHANNEL
RF Cable (provided)
21-pin SCART Cable (not provided)
Another recorder
Player

Edit From A Camcorder


NUMBER "0"
JVC

You can use a camcorder as the source player and your video recorder as the recorder.

1 MAKE CONNECTIONS

Connect the camcorder's AUDIO/VIDEO OUT connectors to the recorder's front panel AUDIO/VIDEO input connectors.

- Use the L connector for monaural connection.
- When a Master Edit Control-equipped JVC camcorder is used, the camcorder is capable of controlling the recorder. Refer to the camcorder's instruction manual for operating procedure.

2 SET RECORDER'S INPUT MODE

Press **NUMBER** key "0". "F-AU" appears in place of a channel number.

3 START CAMCORDER

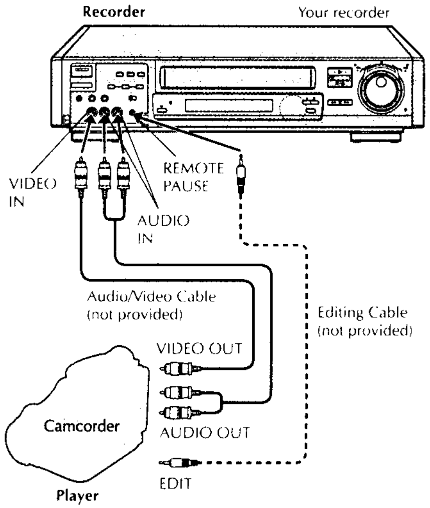
Engage its Play mode.

4 START RECORDER

Engage its Record mode.

NOTE:

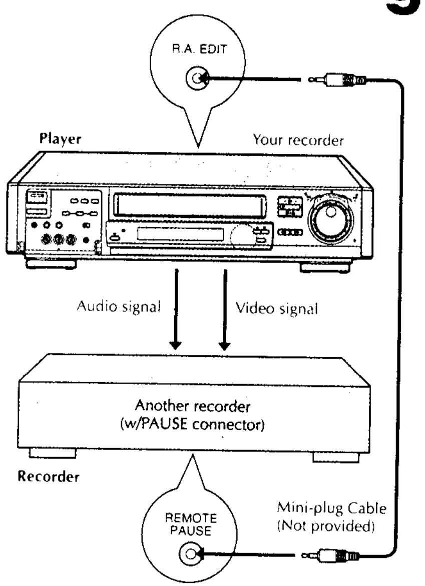
Connections made to the front panel AUDIO/VIDEO input connectors automatically override those made to the rear panel AUDIO/VIDEO input connectors.

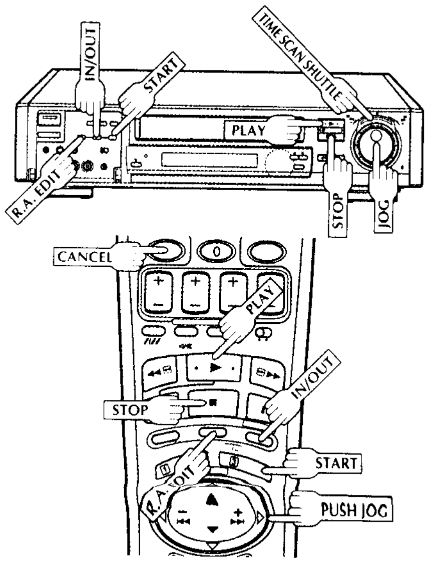

Recorder
Your recorder
VIDEO IN
REMOTE PAUSE
AUDIO IN
Audio/Video Cable (not provided)
Editing Cable (not provided)
VIDEO OUT
Camcorder
AUDIO OUT
EDIT
Player

Random Assemble Editing

This function makes it easier to create edited videos when your video recorder is used as the source player in combination with another JVC video recorder equipped with a Remote PAUSE Connector. You can pre-program up to 8 scenes or "cuts" for automatic editing in the sequence you have specified.

You can also perform Random Assemble Editing with a second non-JVC recorder. ☞ pg. 33





1 MAKE CONNECTIONS

Connect your recorder's AV1 IN/OUT connectors to the VIDEO IN and AUDIO IN connectors on the recording deck, and connect your recorder's R.A. EDIT connector to the PAUSE connector on the recording deck.

- If the recording deck doesn't have a PAUSE connector, connect to the R.A. EDIT connector instead.
- The Mini-plug cable is a mono 3.5 mm mini-plug to mono 3.5 mm mini-plug connector.

2 PREPARE FOR EDITING

Insert the cassette to be recorded on into the recorder and set the recorder's input mode.

3 LOAD SOURCE CASSETTE

Insert the source cassette into your recorder.

4 START SOURCE PLAYBACK

Press **PLAY**.

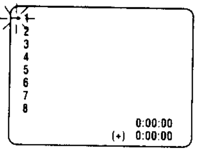
5 ACCESS R.A. EDIT FUNCTION

Press **R.A. EDIT**.

- The screen is superimposed on the video playback in step **6**.

6 LOCATE EDIT-IN POINT

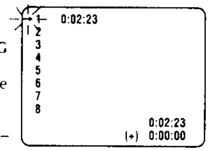
Find the point on the source tape from where you want the edited scene to begin by pressing **PUSH JOG** ◁ ▷ or using the **TIME SCAN SHUTTLE** ring or the **JOG** dial, then press **IN/OUT**.



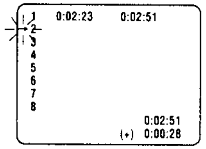
- The edit-in point is registered in memory and appears on the screen.
- You can also perform an Index Search (if index marks have been previously recorded on the tape at the desired points) to find the points you want, but this will result in reduced accuracy.

7 LOCATE EDIT-OUT POINT

Find the point where you want the edited scene to end by pressing **PUSH JOG** ◁ ▷ or using the **TIME SCAN SHUTTLE** ring or the **JOG** dial, then press **IN/OUT**.



- The edit-out point is registered in memory and appears on the screen.
- The total time of the edited scenes is displayed to the right of "(+)".
- Repeat steps **6** and **7** for each additional scene.



8 PREPARE RECORDING DECK

Engage its Record-Standby mode.

9 START R.A. EDIT

Press **START**.

- Automatic editing begins; all the specified scenes are copied to the recording deck in the order they were registered.
- The on-screen display remains while your recorder searches for each scene (blinking cursor indicates scene currently being searched for), but disappears during actual editing.
- During scene search, the recording deck automatically enters its Record-Standby mode.
- When all registered scenes have been edited, your recorder enters the Pause mode, the recording deck enters its Record-Standby mode, and the cursor blinks at the next available number.

10 END R.A. EDIT

Press **R.A. EDIT** again, and engage the Stop mode for your recorder and for the recording deck.

NOTES:

- *You can also monitor the sound when searching for scenes you want to edit in steps* **6** *– 7. Since you can hear the soundtrack during selection, you can avoid abrupt or unnatural sounding scene-to-scene transitions. The sound that is heard, however, is not TimeScan Audio.*
- *When editing, there may be a discrepancy of about 2 seconds on the source tape between the locations you chose as edit-in/-out points and the locations your recorder recognizes as those points.*
- *For any scene, the edit-out point must have a counter reading that is at least 1 second after the corresponding edit-in point. Any less than 1 second and the edit-out point will not be registered.*
- *Since the source recorder prerolls during Random Assemble Editing, there must be at least 15 seconds worth of recorded material prior to any edit-in point on the source tape.*
- *If the search time for an edit-in point exceeds 5 minutes, the recording deck enters its Stop mode and editing will not take place.*
- *During steps* **6** *and 7 -- if you engage the Pause mode while registering edit-in and -out points in the R.A. Edit screen, the characters in the on-screen display may become distorted. This is normal.*

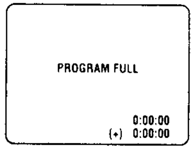
To Make Corrections . . .

. . . during step **6** or **7**, you can cancel registered in and out points by pressing **CANCEL** on the remote control. Each time you press, the preceding point is erased.

- If, for example, you have registered 5 sets of in and out points and want to reset the first set, you have to press **CANCEL** until all points after the first set have been erased. Reenter them after you've repaired the first set of points.

Memory Capacity

Random Assemble Editing shares memory space with the recorder's timer. If there are programs occupied by timer-recording data, those spaces cannot be used to register edit-in and -out points — meaning you won't be able to edit 8 scenes.



- When all 8 programs are full, "PROGRAM FULL" appears on the R.A. EDIT screen.
- To cancel a program, see page 28.

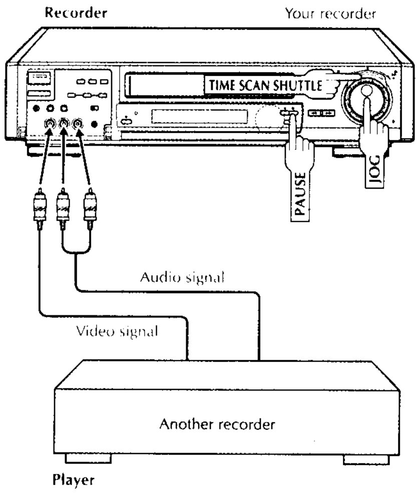
RM-V704U Multi-Brand R.A. Edit Controller (Not provided)

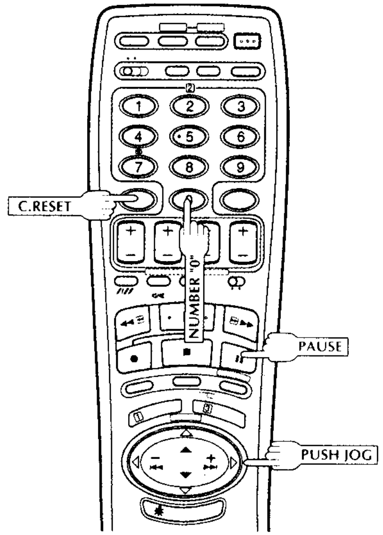
By connecting this controller to your recorder's R.A. EDIT connector, you can perform Random Assemble Editing in combination with a second non-JVC video recorder. The controller is compatible with various major recorder brands. For compatible systems and availability, please consult your JVC dealer.

NOTE:

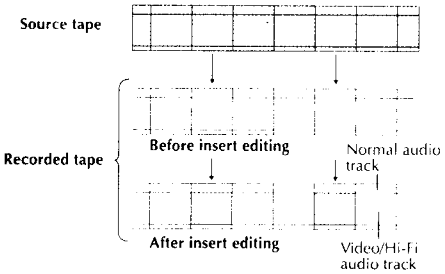
Although the RM-V704U is designed to operate the recording deck, it may not work with some recorders, or may have limited function capability.

Insert Editing





Insert editing replaces part of the recorded scene with new material. Both the picture and Hi-Fi audio soundtrack are replaced with new ones, while the normal audio soundtrack remains unchanged. If you wish to change the normal audio track as well, use the audio dubbing function simultaneously. Use your video recorder as the recorder.



1 MAKE CONNECTIONS

Connect the player's VIDEO OUT and AUDIO OUT connectors to your recorder's VIDEO IN and AUDIO IN on the front panel.

2 SET INPUT MODE

Press **NUMBER** key "0". "F-AU" appears in place of a channel number.

3 LOCATE END POINT

Load the recording cassette into your recorder, and play it back to determine the edit-out point (the end of the segment to be replaced) using the **JOG/TIME SCAN SHUTTLE** controls or **PUSH JOG** ◁ ▷ and **PAUSE.**

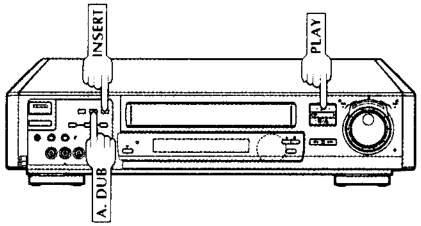
4 RESET THE COUNTER

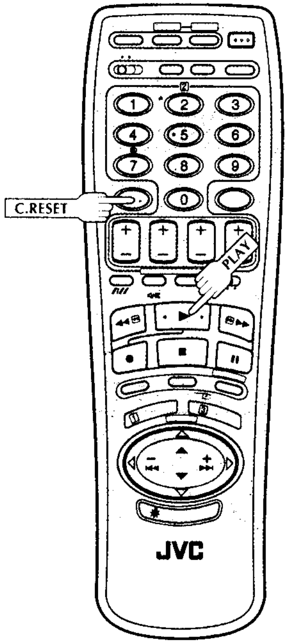
Press **C.RESET** to change the counter display to "0:00:00".

5 LOCATE START POINT

Determine the edit-in point (the beginning of the segment to be replaced) using the **JOG/TIME SCAN SHUTTLE** controls or **PUSH JOG** ◁ ▷ and **PAUSE.**

- Be sure to engage the Still mode at the edit-in point.





6 ENGAGE INSERT EDITING

Press **INSERT**.

- Your recorder enters the Insert-Pause mode.
- The TV screen changes from the still picture to the input source you are going to record.

7 START EDITING

Load the source cassette and play back the segment that is to be inserted. When you reach the start of the section of the source tape that you wish to insert, press **PLAY** to start the tape in your recorder; Insert Editing begins at this point.

8 END INSERT EDITING

At counter "0:00:00", Insert Editing will stop automatically while the tape continues running in the Play mode. If you wish to stop Insert Editing before the specified edit-out point, press **C.RESET**.

FOR AV INSERT EDITING

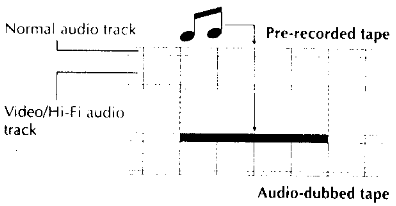
If you want to replace the picture, Hi-Fi audio soundtrack and normal audio soundtrack all at the same time...
In step **6** above, after you press **INSERT**, press **A. DUB** also.

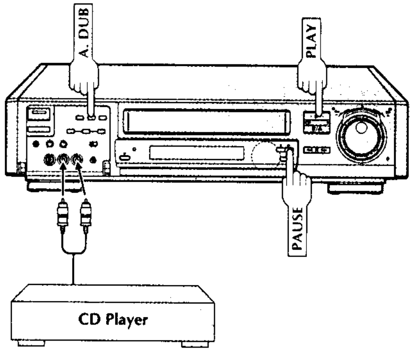
NOTES:

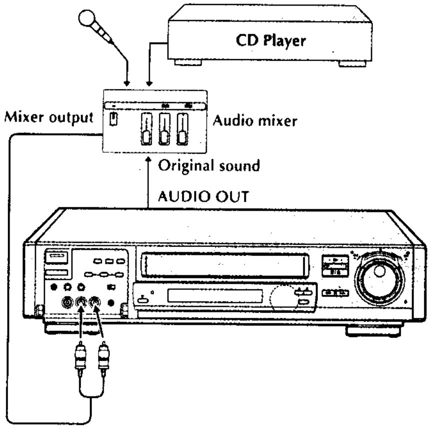
- *Suitable leads can be obtained from your dealer.*
- *Insert editing is not possible with cassettes whose safety tab has been removed.*
- *In insert editing, the recording speed (SP/LP) is determined by the previous recording to be replaced. If the previous recording's speed changes within a single edit, the inserted picture will be distorted at the switching point.*
- *A small portion of the recording which precedes an insert edit may become erased.*
- *Insert Editing is also possible using the rear panel AV1 IN/OUT or AV2 IN connector. When using these connectors, make sure to select the correct input mode in step* **2**.
- *Connections made to the recorder's front panel are given priority over those made to the rear panel connectors.*

Audio Dubbing

Audio dubbing replaces the normal audio sound of a previously recorded tape with a new soundtrack.







1 MAKE CONNECTIONS

Connect an audio component to the AUDIO IN L + R connectors on the recorder's front panel.

- When connecting monaural equipment, use only the recorder's AUDIO IN L connector.

2 SET INPUT MODE

Press **NUMBER** key "0". "F-AU" appears in place of a channel number.

3 LOCATE START POINT

Press **PLAY** to start playback of the tape in your recorder, and press **PAUSE** when you find the point where you want to start dubbing.

4 ENGAGE AUDIO DUBBING

Press **A. DUB**.

- To perform audio dubbbing with audio mixing, press **AUDIO MONITOR** to select "L + R" at this point. *Audio dubbing with audio mixing is not possible if you're using a monaural audio component, or if you don't have an audio mixer.

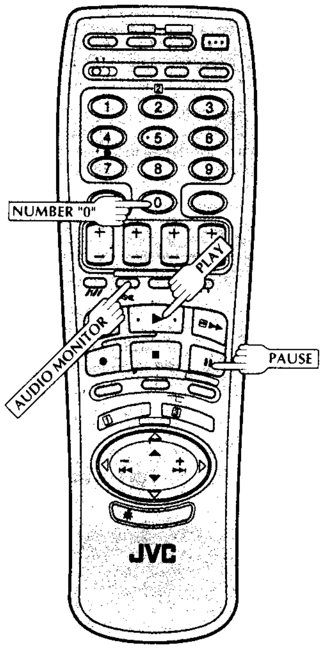
5 START DUBBING

Engage the audio component's Play mode, then press **PLAY** to start the tape in your recorder. Audio dubbing begins at this point.

- To stop dubbing temporarily, press **PAUSE**. Press **PLAY** to resume dubbing.

6 END AUDIO DUBBING

Press **STOP** to stop the tape in your recorder, and engage the audio component's Stop mode.



NOTES:

- *When monitoring the sound during Audio Dubbing, the normal soundtrack is automatically selected. If you wish to hear the mixed sound (Hi-Fi + Normal soundtracks), press* ***AUDIO MONITOR*** *to select "L+R+NORM" (☞ pg. 13).*
- *Audio dubbing stops automatically when the counter reaches "0:00:00", and the recorder enters the Play mode. Check the counter reading before dubbing.*
- *Audio dubbing is also possible using the rear panel AV1 IN/OUT or AV2 IN connector. When using these connectors, make sure to select the correct input mode in step* ***2****.*
- *Connections made to the recorder's front panel are given priority over those made to the rear panel connectors.*
- *Audio dubbing cannot be performed on a cassette that has had its record safety tab removed.*
- *When playing back an audio-dubbed tape, press* ***AUDIO MONITOR*** *to select the soundtrack you wish to hear (☞ pg. 13).*

Storing Channels Manually

Store channels that were not stored during Auto Channel Set.

1 ACCESS CH. SET MODE MENU

Press and hold **CH SET** for more than 2 seconds. The Language screen appears. Press **OK**. The Ch. Set Mode menu appears.

2 SELECT MODE

Press **PUSH JOG**△▽ to select "MANUAL CH SET", then press **OK**. The Confirmation screen appears.

3 SELECT POSITION

Press **PUSH JOG**△▽◁▷ until an open position in which you want to store a channel begins blinking, then press **OK**. The Manual Ch. Set screen appears.

4 INPUT CHANNEL

The number "01" appears blinking beneath "CH". Press the **NUMBER** keys to input the channel number you want to store.

- For fine tuning adjustment, press **PUSH JOG** ▷ until the item beneath "CH" begins blinking, then press **PUSH JOG**△▽. While tuning, "F+" or "F–" appears.
- If necessary, to change the band between CH(regular) and CC(cable), press **PUSH JOG**◁▷ until CH or CC is blinking, then press **PUSH JOG** △▽ to select the band.
- When storing a channel that sends scrambled broadcasts, press **PUSH JOG**▷ until "DECODER" blinks, then press **PUSH JOG**△▽ to set "DECODER" to "ON" ("OFF" is the default setting).

5 ENTER NEW CHANNEL INFORMATION

Press **OK** or **STORE**, and the Confirmation screen appears.

- Repeat steps **3** through **5** as necessary.

6 CLOSE CONFIRMATION SCREEN

Press **CH SET**.

- To input the station name, see page 39.
- To change positions, see "Change Station Channel Position" (at right).

When Receiving A Scrambled Broadcast

Make sure that the **AV2 SELECT** switch is set to "DECODER" (☞ pg. 4).

1– Perform steps **1** and **2** above.
2– Press **PUSH JOG**△▽◁▷ to select the position of the channel broadcasting the scrambled programmes, then press **OK** three times.
3– Press **PUSH JOG**▷ until "DECODER" begins blinking, and set it to "ON" by pressing **PUSH JOG**△▽.
4– Press **OK** to access the Confirmation screen.
  - Repeat steps **2 – 4** for each additional channel.
5– Press **CH SET**.

Perform steps **1** and **2** of the previous procedure to access the Confirmation screen before continuing.

Delete A Channel

1 SELECT ITEM

Press **PUSH JOG**△▽◁▷ until the item you want to delete begins blinking.

2 DELETE CHANNEL

Press **CANCEL**.

- The item directly beneath the cancelled one moves up one line.
- Repeat steps **1** and **2** as necessary.

3 CLOSE CONFIRMATION SCREEN

Press **CH SET**.

Change Station Channel Position

1 SELECT ITEM

Press **PUSH JOG**△▽◁▷ until the item you want to move begins blinking. Then press **OK** and the station name (ID) and its channel (CH) number begin blinking.

2 SELECT NEW POSITION

Press **PUSH JOG**△▽◁▷ to move the station to the new channel position, then press **OK**.

Example: If you moved the station in position 3 to position 7, the stations originally in positions 4–7 each move up one space.

- Repeat steps **1** and **2** as necessary.

3 CLOSE CONFIRMATION SCREEN

Press **CH SET**.

Perform steps **1** and **2** of "Storing Channels Manually" on page 38 to access the Confirmation screen before continuing.

Set Stations (A)

1 SELECT ITEM

Press **PUSH JOG**△▽◁▷ until the item you want begins blinking. Then press **OK** twice and the station's name (ID) begins blinking.

2 SELECT NEW STATION

Press **PUSH JOG**△▽ until the new station's name (ID) you want to store begins blinking.
Registered station names (☞ pg. 40) appear as you press **PUSH JOG**△▽.

3 SWITCH STATIONS

Press **OK**.

- Repeat steps **1** through **3** as necessary.

4 CLOSE CONFIRMATION SCREEN

Press **CH SET**.

Set Stations (B)

NOTE:

*First perform step **1** of the above procedure.*

2 SELECT STATION NAME CHARACTER

Press **PUSH JOG** ▷ and the first letter of the station name begins blinking.

3 ENTER NEW CHARACTER

Press **PUSH JOG**△▽ to cycle through the characters (A–Z, 0–9, –, ∗, +, — (space)) and stop when the desired one is indicated, then press **PUSH JOG** ▷ to enter. Enter the remaining characters the same way (maximum of 4).
After entering all characters, press **OK**.

- Repeat steps **1** through **3** as necessary.
- If you make a mistake, press **PUSH JOG** ◁ until the incorrect character begins blinking. Then enter the correct character by pressing **PUSH JOG**△▽ .

4 CLOSE CONFIRMATION SCREEN

Press **CH SET**.

Fine-Tuning Channels Already Stored

1 SELECT CHANNEL TO FINE-TUNE

Press **PUSH JOG**△▽◁▷ until the channel you want to tune begins blinking.

2 ACCESS MANUAL CH. SET SCREEN

Press **OK** three times. The Manual Ch. Set screen appears.

3 PERFORM TUNING

Press **PUSH JOG**△▽ until the picture is its clearest. Then press **OK**.

- The Confirmation screen appears.
- Repeat steps **1** through **3** as necessary.

4 CLOSE CONFIRMATION SCREEN

Press **CH SET**.

ID*	STATION NAME
1000	TV1000
3SAT	3SAT
ADLT	ADULT
ANT3	ANTENA3
ARD	ARD
ARTE	ARTE
BBC	BBC GROUP
BBC1	BBC1
BBC2	BBC2
BR3	BAYERN3
C+	CANAL PLUS
C1	PORTUGUSES
CAN5	CANALE5
CH4	CHANNEL4
CH5	CHANNEL5
CHLD	CHILD
CINE	CINEMA
CLUB	TELECLUB
CMT	CMT
CNN	CNN
CSUR	ANDALUCIA
DISC	DISCOVERY
DR	DR TV
DRS	DRS
DSF	DSF
ETB1	ETB1
ETB2	ETB2
EURO	EURONEWS
EUSP	EUROSPORTS
FEMM	FEMMAN
FILM	FILM
FNET	FILMNET
FR2	France2
FR3	France3
GALA	GALAVISION
HR3	HESSEN3
INFO	INFO-KANAL
ITA1	ITALIA1
ITA7	ITALIA7
ITV	ITV
JSTV	JSTV
KA2	KA2
KAB1	KABEL1
KAN2	KANAL2
LOCA	LOCAL
M6	M6
MBC	MBR
MCM	MCM
MDR	MDR
MOVE	MOVIE
MTV	MTV
MTV3	MTV3
N3	NORD3
N-TV	N-TV
NBC	NBC SUPER
NDR	NDR
NED1	NED1
NED2	NED2
NED3	NED3
NEWS	
NRK	NRK
ODE	ODEON
ORF1	ORF1

ID*	STATION NAME
ORF2	ORF2
ORF3	ORF3
OWL3	OWL3
PREM	PREMIERE
PRO7	PRO7
RAI1	RAI1
RAI2	RAI2
RAI3	RAI3
RET4	RETE4
21	TELE21
RTBF	RTBF1 or 2
RTL	RTL
RTL2	RTL2
RTL4	RTL4
RTP	RTP
S4	SCHWEIZ4
SAT1	SAT1
SBS	SBS
SHOW	SHOW
SIC	SOCIEDADE
SKY	SKY CHANNEL
SKYN	SKY NEWS
SPRT	SPORT
SRTL	SUPER RTL
STAR	STAR-TV
SVT1	SVT1
SVT2	SVT2
SW3	SUEDWEST3
TCC	TCC
TELE	TELE
TEL5	TELE5
TF1	TF1
TM3	TM3
TMC	TELEMONTECARLO
TNT	TNT INT
TRT	TRT INT
TSI	TSI
TSR	TSR
TV1	BRTN TV1
TV2	BRTN TV2
TV3	TV3
TVE1	TVE1
TVE2	TVE2
TVG	TV GALICIA
TVI	TV INDEPENDENT
TVN	TV NORGE
VCR	VIDEO
VERO	VERONICA
VH-1	VH-1
VIVA	VIVA
VIV2	VIVA2
VMTV	VIDEO MUSIC
VOX	VOX
VT4	VT4
VTM	VTM
WDR1	West1
WDR3	West3
YLE1	YLE1
YLE2	YLE2
ZDF	ZDF
ZTV	ZTV

* The ID designator appears on your recorder's front display panel and in the on-screen listing.

Before requesting service for a problem, use this chart and see if you can repair the trouble yourself. Small problems are often easily corrected, and this can save you the trouble of sending your video recorder off for repair.

POWER

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. No power is applied to the recorder.	● The mains power cord is disconnected.	Connect the mains power cord.
2. The clock is functioning properly, but the recorder cannot be powered.	● "⊙" is displayed on the display panel.	Press the **TIMER** button to turn the "⊙" indicator off.

TAPE TRANSPORT

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. The tape does not run during recording.	● "⊔⊔" is displayed on the display panel.	Press **PLAY** to turn the "⊔⊔" indicator off.
2. The tape stops during rewind or fast-forward.	● "M" is displayed on the display panel.	Press **C.MEMORY** to deactivate the Counter Memory function and turn the "M" indicator off.
3. The tape will not rewind or fast-forward.	● The tape is already fully rewound or fast-forwarded.	Check the cassette.

PLAYBACK

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. The playback picture does not appear while the tape is running.	● If you're using the RF OUT connection, the TV receiver's channel selector is set to the wrong video channel. ● If you're using the AV connection, the TV receiver is not set to the AV mode.	If you are using the RF OUT connection, set the TV receiver to the RF converter channel (UHF 36). (☞ pg. 3) If you are using the AV connection, set the TV to its AV mode.
2. Noise appears during normal playback.	● The automatic tracking mode is engaged.	Try manual tracking. (☞ pg. 11)
3. Noise appears during slow-motion playback.	● The automatic tracking mode is engaged.	Try manual tracking. (☞ pg. 11)
4. Noise appears during still playback.		Press **TV PROG.** + or – a few times to remove the noise bars from the screen.
5. Breaks are noticeable in Hi-Fi soundtrack	● Automatic tracking is engaged.	Engage and adjust tracking manually. (☞ pg. 11)
6. The playback picture is blurred or interrupted while TV broadcasts are clear.	● The video heads may be dirty.	Consult your JVC dealer.

RECORDING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Recording cannot be started.	● There is no cassette loaded, or the cassette loaded has had its Record Safety tab removed.	Insert a cassette, or using adhesive tape, reseal the slot where the tab was removed.
2. TV broadcasts cannot be recorded.	● "AU" has been selected as the input mode.	Set to the desired channel.

CONTINUED ON NEXT PAGE.

3. Tape-to-tape editing is not possible.	• The source (another video recorder, camcorder) has not been properly connected. • All necessary power switches have not been turned on. • The input mode is not correct.	Confirm that the source is properly connected. Confirm that all units' power switches are turned on. Set the input mode to "AU".
4. Camcorder recording is not possible.	• The camcorder has not been properly connected. • The input mode is not correct.	Confirm that the camcorder is properly connected. Set the input mode to "AU".

TIMER RECORDING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Timer recording won't work.	• The clock and/or the timer have been set incorrectly. • The timer is not engaged.	Re-perform the clock and/or timer settings. Press **TIMER** and confirm that "◷" is displayed on the display panel.
2. On-screen timer programming is not possible.	• Timer recording is in progress.	Timer programming can't be performed while a timer recording is in progress. Wait until it finishes.
3. "◷" and "📼" on the display panel won't stop blinking.	• The timer is engaged but there's no cassette loaded.	Load a cassette with the Record Safety tab intact, or cover the hole using adhesive tape.
4. The cassette is automatically ejected, and "◷" and "📼" on the display panel won't stop blinking.	• The loaded cassette has had its Record Safety tab removed.	Remove the cassette and cover the hole with adhesive tape, or insert a cassette with the Record Safety tab intact.
5. "◷" blinks for 10 seconds and the Timer mode is disengaged.	• **TIMER** has been pressed when there are no programs in memory, or the timer record information has been programmed incorrectly.	Check the programmed data and re-program as necessary, then press **TIMER** again.
6. The cassette is automatically ejected, the power shuts off and "◷" and "📼" won't stop blinking.	• The end of the tape was reached during timer recording.	The programme may not have been recorded in its entirety. Next time make sure you have enough time on the tape to record the entire programme.
7. ShowView does not timer-record properly.	• The recorder's channel positions have been set incorrectly.	Refer to "Guide Prog. Number Set" and re-perform the procedure (☞ pg. 22).

OTHER PROBLEMS

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Whistling or howling is heard from the TV during camcorder recording.	• The camcorder's microphone is too close to the TV. • The TV's volume is too high.	Position the camcorder so its microphone is away from the TV. Turn the TV's volume down.
2. When scanning channels, some of them are skipped over.	• Those channels have been designated to be skipped.	If you need the skipped channels, restore them (☞ pg. 38).
3. The channel cannot be changed.	• Recording is in progress.	Press **PAUSE** to pause the recording, change channels, then press **PLAY** to resume recording.
4. The remote control won't operate the TV.	• The **TV/VCR** switch is in the wrong position.	Set the switch to TV.
5. Channel settings that were made manually seem to have changed or disappeared.	• After the manual settings were made, Auto Channel Set was performed.	Perform manual setting again.

PLAYBACK

Q. What happens if the end of the tape is reached during playback or search?
A. The tape is automatically rewound to the beginning.

……

Q. Can the video recorder indefinitely remain in the still mode?
A. No. It stops automatically after 5 minutes to protect the heads.

……

Q. When returning from multi-speed search to normal playback, the picture is disturbed. Should I be concerned about this?
A. No, it is normal.

……

Q. Other than preventing further recording, what effect does removing the Record Safety tab have?
A. It disables marking of index codes.

……

Q. Sometimes, during Index Search, the video recorder can't find the programme I want to see. Why not?
A. There may be index codes too close together.

……

RECORDING

Q. When I pause and then resume a recording, the end *of the recording before the pause is overlapped by* the beginning of the continuation of recording. Why does this happen?
A. This is normal. It reduces distortion at the pause and resume points.

……

Q. Can the video recorder indefinitely remain in the Record-Pause mode?
A. No. The video recorder goes to its Stop mode automatically after 5 minutes to protect the heads.

……

Q. What happens if the tape runs out during recording?
A. The video recorder automatically rewinds it to the beginning.

……

TIMER RECORDING

Q. " ◌ " and "◷" remain lit on the display panel. Is there a problem?
A. No. This is a normal condition for a timer recording in progress.

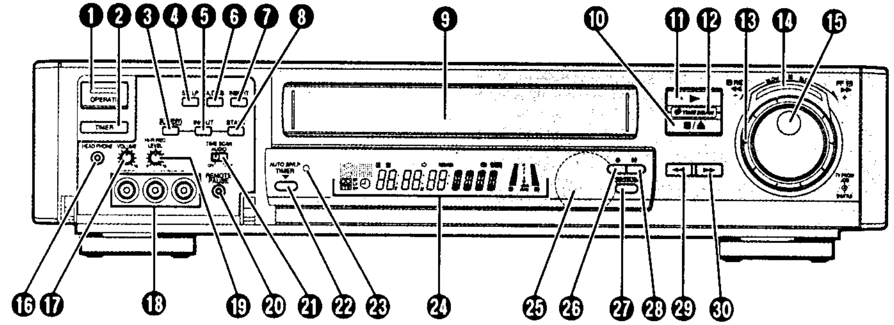
……

Q. Can I program the timer while I'm watching a tape or a TV broadcast?
A. You won't see the picture as it is replaced by the on-screen menu, but the audio from the program or tape you're viewing can be heard.

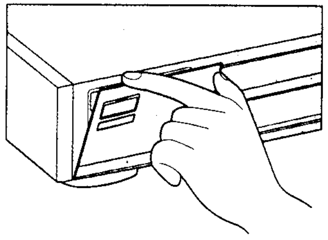
……

ATTENTION:
This recorder contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the recorder off and unplug the mains power cord. Then plug it in again and turn the recorder on. Take out the cassette. After checking the cassette, operate the unit as usual.

FRONT VIEW



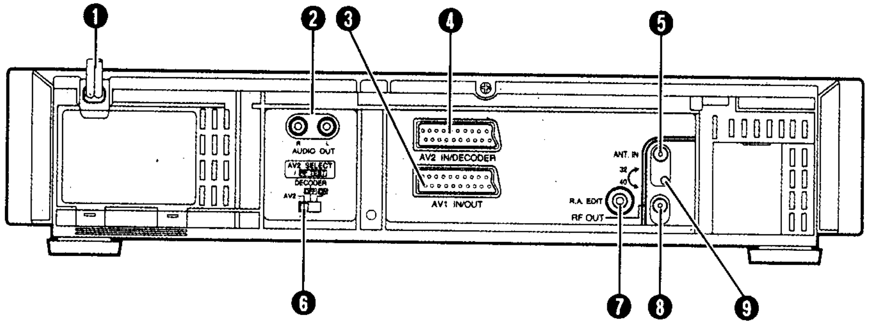
Open the lid to access covered connectors and buttons.



① OPERATE Button (☞ pg. 3)
② TIMER Button (☞ pg. 25)
③ R.A.EDIT Button (☞ pg. 32)
④ SP/LP [Tape Speed] Button (☞ pg. 16)
⑤ IN/OUT Button (☞ pg. 32)
⑥ A. DUB [Audio Dubbing] Button (☞ pg. 36)
⑦ INSERT Button (☞ pg. 34)
⑧ START Button (☞ pg. 33)
⑨ Cassette Loading Slot
⑩ STOP/EJECT Button (☞ pg. 9)
⑪ PLAY Button (☞ pg. 9)
⑫ TIME SCAN Indicator (☞ pg. 14)
⑬ TIME SCAN SHUTTLE Ring (☞ pg. 14)
⑭ TIME SCAN SHUTTLE Indicator (☞ pg. 14)
⑮ JOG Dial (☞ pg. 10)
TV PROG. Dial (☞ pg. 16)
⑯ Headphone Connector*
⑰ Headphone Volume control*
⑱ VIDEO and AUDIO Input Connectors (☞ pg. 31)
⑲ Hi-Fi Audio Recording Level Control (☞ pg. 21)
⑳ REMOTE PAUSE Connector (☞ pg. 31)
㉑ TIME SCAN AUDIO Switch (☞ pg. 14)
㉒ AUTO SP/LP TIMER Button (☞ pg. 28)
㉓ AUTO SP/LP TIMER Indicator (☞ pg. 28)
㉔ Display Panel (☞ pg. 45)
㉕ Infrared Beam Receiving Window
㉖ RECORD Button (☞ pg. 16)
㉗ REVIEW Button (☞ pg. 11)
㉘ PAUSE Button (☞ pg. 10)
㉙ Rewind [REW] Button (☞ pg. 9)
㉚ Fast Foward Button [FF] Button (☞ pg. 9)

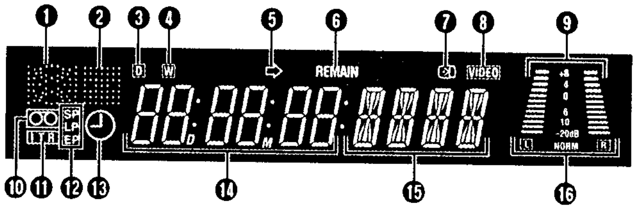
* It is possible to listen to the audio using headphones. Adjust the volume level using the Headphone Volume Control.

REAR VIEW



① Mains Power Cord (☞ pg. 3)
② AUDIO OUT(L/R) Connectors (☞ pg. 3)
③ AV1 IN/OUT Connector (☞ pg. 3)
④ AV2 IN/DECODER Connector (☞ pg. 4)
⑤ ANT. IN Connector (☞ pg. 3)
⑥ AV2 SELECT/RF TEST Switch (☞ pg. 4)
⑦ R.A.EDIT Connector (☞ pg. 32)
⑧ RF OUT Connector (☞ pg. 3)
⑨ RF Output Channel Adjustment Screw (☞ pg. 4)

DISPLAY PANEL



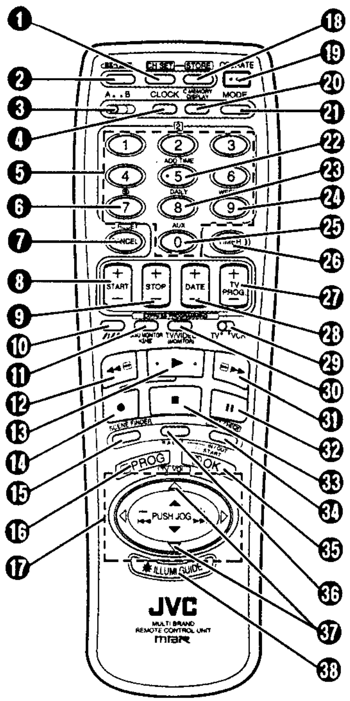
① and ② Symbolic Mode Indicators

PLAY:	▷	RECORD:	○
FF:	▷▷	RECORD PAUSE:	○ ▥
REW:	◁◁	AUDIO DUBBING:	⊜
FF VARIABLE SHUTTLE SEARCH:	▷ ▷▷*	AUDIO DUBBING PAUSE:	⊜ ▥
REW VARIABLE SHUTTLE SEARCH:	◁ ◁◁*	INSERT:	⊳
REVERSE PLAY:	◁	INSERT PAUSE:	⊳ ▥
STILL: FORWARD SLOW:	▷ ▥	AUDIO DUBBING INSERT:	⊳
STILL: REVERSE SLOW:	◁ ▥	AUDIO DUBBING INSERT PAUSE:	⊳ ▥

* The indicator will blink during turbo search.

③ "DAILY" Program Mark (☞ pg. 25)
④ "WEEKLY" Program Mark (☞ pg. 25)
⑤ Start Time/Stop Time Indicator (☞ pg. 24)
⑥ Tape Remaining Time Indicator (☞ pg. 13)
⑦ PDC/VPS Indicator (☞ pg. 28)
⑧ VIDEO Indicator (☞ pg. 21)
⑨ B.E.S.T. Picture System Display (☞ pg. 17)
Audio Level Indicator (☞ pg. 21)
⑩ "Cassette Loaded" Mark
⑪ Instant Timer Recording (☞ pg. 21)
⑫ Tape Speed Indicators (☞ pg. 16)
⑬ "Timer" Indicator (☞ pg. 25)
⑭ Clock/Counter/Tape Remaining Time Display (☞ pg. 7)
⑮ Channel/Mode Display (☞ pg. 5)
⑯ Audio Mode Indicator (☞ pg. 13)

REMOTE CONTROL

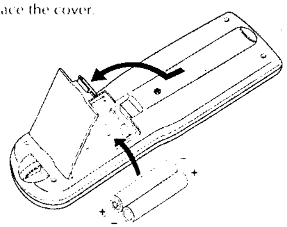


① CH SET Button (☞ pg. 5)
② REVIEW Button (☞ pg. 11)
③ A/B CODE Switch (☞ pg. 13)
④ CLOCK Button (☞ pg. 7)
⑤ NUMBER Keys (☞ pg. 16)
⑥ ⊡ (PDC/VPS) Button (☞ pg. 28)

⑦ CANCEL Button (☞ pg. 23)
C.RESET Button (☞ pg. 13)
⑧ START +/– Button ☞ pg. 26)
⑨ STOP +/– Button (☞ pg. 27)
⑩ TRACKING Button (☞ pg. 11)
SP/LP Button (☞ pg. 16)
DIGIT ENTRY Button (☞ pg. 29)
⑪ AUDIO MONITOR Button (☞ pg. 13)
TV MUTE Button (☞ pg. 29)
⑫ Rewind [REW] Button (☞ pg. 9)
⑬ PLAY Button (☞ pg. 9)
⑭ RECORD Button (☞ pg. 16)
⑮ SCENE FINDER Button (☞ pg. 12)
⑯ PROG. Button (☞ pg. 24)
⑰ PUSH JOG △▽◁▷ Button (☞ pg. 5)
PUSH JOG ◁▷ Button (☞ pg. 10)
⑱ STORE Button (☞ pg. 38)
C.MEMORY Button (☞ pg. 13)
⑲ OPERATE Button (☞ pg. 3)
⑳ DISPLAY Button (☞ pg. 13)
㉑ MODE Button (☞ pg. 17)
㉒ ADD TIME Button (☞ pg. 25)
㉓ DAILY Button (☞ pg. 25)
㉔ WEEKLY Button (☞ pg. 25)
㉕ AUX Button (☞ pg. 30)
㉖ TIMER Button (☞ pg. 25)
㉗ TV PROG. +/– Button (☞ pg. 5)
㉘ DATE +/– Button (☞ pg. 27)
㉙ TV/VCR Switch (☞ pg. 29)
㉚ TV/VIDEO Button (☞ pg. 21)
㉛ Fast Forward [FF] Button (☞ pg. 9)
㉜ PAUSE Button (☞ pg. 10)
㉝ STOP Button (☞ pg. 9)
㉞ PROG CHECK Button (☞ pg. 28)
IN/OUT Button (☞ pg. 32)
㉟ OK Button (☞ pg. 5)
START Button (☞ pg. 33)
㊱ R.A.EDIT Button (☞ pg. 32)
㊲ TV VOL △▽ Button (☞ pg. 29)
㊳ ILLUMI GUIDE Button (☞ pg. 24)

Installing Batteries

1 Open the battery compartment cover.
2 Insert 2 "R6"-size batteries (provided) in the correct directions.
3 Replace the cover.



How To Use

The remote control can operate most of your video recorder's functions, as well as basic functions of TV sets of JVC and other brands (☞ pg. 29).

- Point the remote control toward the sensor window.
- The maximum operating distance of the remote control is about 8 m.

NOTE:

If for some reason the remote control doesn't work properly, remove its batteries, wait a short time and then try again.

SPECIFICATIONS

GENERAL

Power requirement	: AC 220 – 240 V∿, 50/60 Hz
Power consumption	: 24 W
Temperature	
Operating	: 5°C to 40°C
Storage	: –20°C to 60°C
Operating position	: Horizontal only
Dimensions (WxHxD)	: 465 x 105 x 353 mm
Weight	: 5.4 kg
Format	: VHS PAL standard
Maximum recording time	
(SP)	: 240 min. with E-240 video cassette
(LP)	: 480 min. with E-240 video cassette

VIDEO/AUDIO

Signal system	: PAL-type colour signal and CCIR monochrome signal,625 lines 50 fields
Recording system	: DA4 (Double Azimuth) head helical scan system
Signal-to-noise ratio	: 45 dB
Horizontal resolution	: 250 lines
Frequency range	: 70 Hz to 10,000 Hz (Norma audio) 20 Hz to 20,000 Hz (Hi-Fi audio)
Input/Output	: 21-pin scart connectors (IN/OUT x 1, IN/DECODER x 1) RCA connectors (VIDEO IN x 1, AUDIO IN x 1, AUDIO OUT x 1)

TUNER/TIMER

TV channel storage capacity	: 99 positions (+AUX position "AU")
Tuning system	: Frequency synthesized tuner
Channel coverage	: VHF 47 – 89/104 – 300/ 302 – 470MHz UHF 470 – 862MHz
Aerial output	: UHF channel 36 (Adjustable 32 – 40)
Memory backup time	: Approx. 60 min.

ACCESSORIES

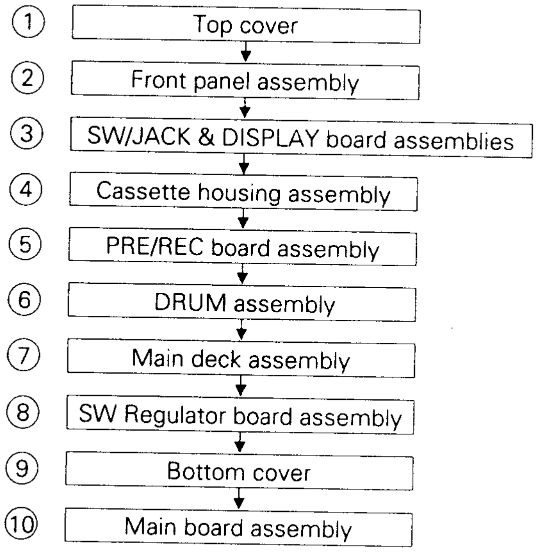
Provided accessories	: RF cable, Infrared remote control unit, "R6" battery x 2

Specifications shown are for SP mode unless otherwise specified. E.& O.E. Design and specifications subject to change without notice.

SECTION 1
DISASSEMBLY

1.1 DISASSEMBLY FLOW CHART

This flowchart lists shows the disassembling steps for the cabinet parts and P.C. boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally laid.



1.2 HOW TO READ THE DISASSEMBLY AND ASSEMBLY

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	4(S1), S2 SIDE PANEL(L,R)	
②	FRONT PANEL ASSEMBLY	D2	9(L1), *JOG/SHUTTLE	<NOTE1>
③	SW/JACK & DISPLAY BOARD ASSEMBLIES	D3	13(L2),*CN1, *CN4	<NOTE2>
④	CASSETTE HOUSING ASSEMBLY	D4	2(S3), 2(S4)	<NOTE3>
⑤	PRE/REC BOARD ASSEMBLY	D5	2(S5), *CN101, *CN1, *CN401 SHIELD CASE	
↑ (1)	↑ (2)	↑ (3)	↑ (4)	↑ (5)

(1) Order of steps in Procedure
When reassembling, perform the step(s) in the reverse order. These numbers are also used as the identification (location) NO. of parts Figures.
(2) Part name to be removed or installed.
(3) Fig.No. showing procedure or part location
(4) Indentification of part to be removed,unhooked,unlocked, released,unpluged,unclamped or unsoldered. P = Spring, W = Washer, S = Screw, L = Locking tab, * = Unhook,unlock, release,unplug or unsolder.
(5) Adjustment information for installation

1.3 DISASSEMBLY/ASSEMBLY METHOD

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	4(S1), (S2) SIDE PANEL(L,R)	
②	FRONT PANEL ASSEMBLY	D2	9(L1), *JOG/SHUTTLE	<NOTE1>
③	SW/JACK & DISPLAY BOARD ASSEMBLIES	D3	13(L2),*CN1, *CN4	<NOTE2>
④	CASSETTE HOUSING ASSEMBLY	D4	2(S3), 2(S4)	<NOTE3>
⑤	PRE/REC BOARD ASSEMBLY	D5	2(S5), *CN101, *CN1, *CN401 SHIELD CASE	
⑥	DRUM ASSEMBLY	D6	3(S6), WR1, *CN851, 4(L3) INTERTIA PLATE	<NOTE4>
⑦	MAIN DECK ASSEMBLY	D7	2(S7),WR2,WR3, 2(L4),CN703	<NOTE5>
⑧	SW REGULATOR BOARD ASSEMBLY	D8	3(S8),*CN1,*CN2	
⑨	BOTTOM COVER	D9 D10	4(L5),7(L6),(S9), 2(S10) FOOT ASSEMBLY	<NOTE6>
⑩	MAIN BOARD ASSEMBLY	D11	2(S11)	

<NOTE1>
When reattaching the front panel assembly, make sure that the door opener (ⓐ) of the cassette housing assembly is lowered in position prior to the reinstallation.

<NOTE2>
When plugging the connector in, check that the flat wire is inserted properly and fully.

<NOTE3>
When reattaching the cassette housing assembly, pay careful attention to the switch lever not to make it touch the REC switch knob of the REC SAFETY board assembly from the upside.
(If the REC switch knob of the REC SAFETY board assembly is damaged, cassette loading is impossible.)

<NOTE4>
When plugging the connector in, check that the flat wire is inserted properly and fully.

<NOTE5>
- When removing the Main deck assembly only, unhook the two spacers connecting it with the Main board assembly with pliers from the back side of the Main board assembly first, and then remove the Main deck assembly.
- When reattaching the Main deck assembly to the Main board assembly, make sure to set the spacers into the retaining slots respectively.

<NOTE6>
- Disengage 4 tabs (L5) of the top side of chassis and remove 4 feet assemblies.
Then take out 1 screw (S9) and 2 screws (S10), and remove the bottom cover (⑨).

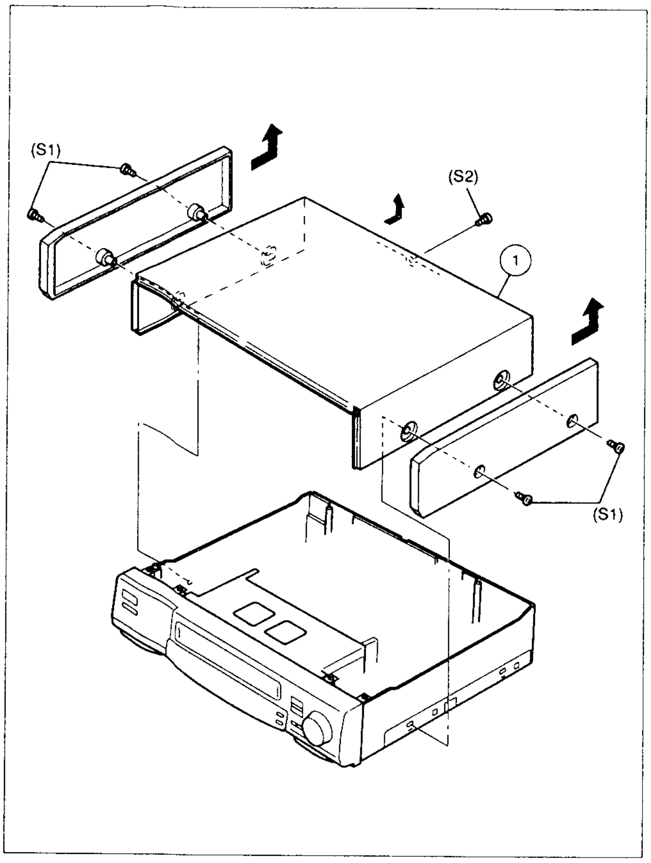


Fig. D1

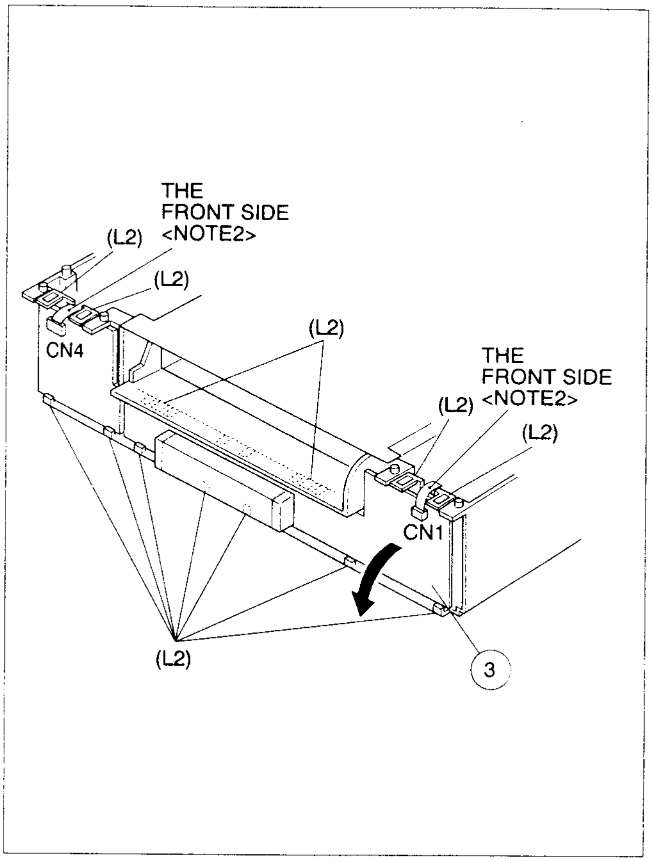

THE
FRONT SIDE
<NOTE2>
(L2)
(L2)
CN4
(L2)
THE
FRONT SIDE
<NOTE2>
(L2)
(L2)
CN1
(L2)
3

Fig. D3

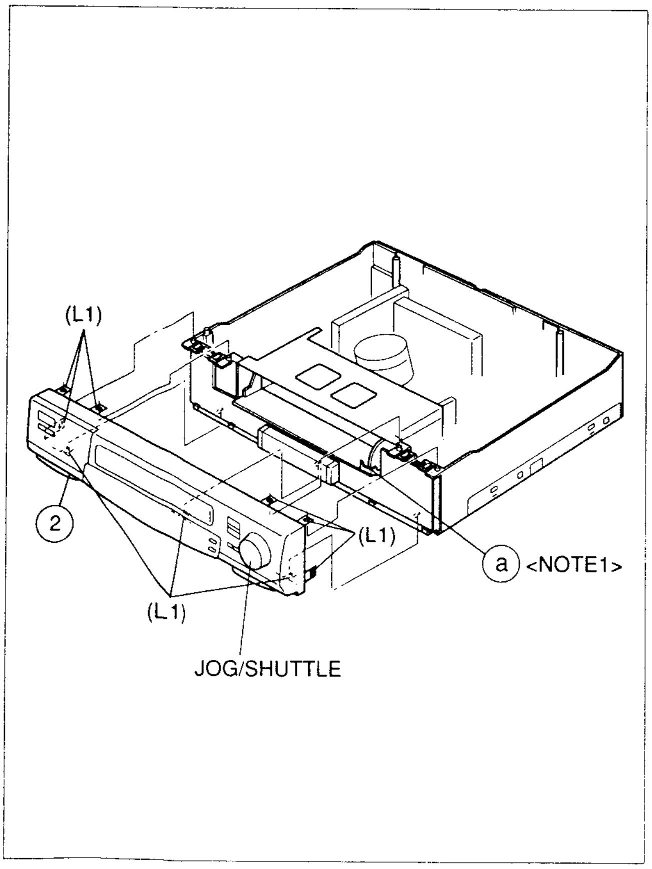

(L1)
2
(L1)
(L1)
a <NOTE1>
JOG/SHUTTLE

Fig. D2

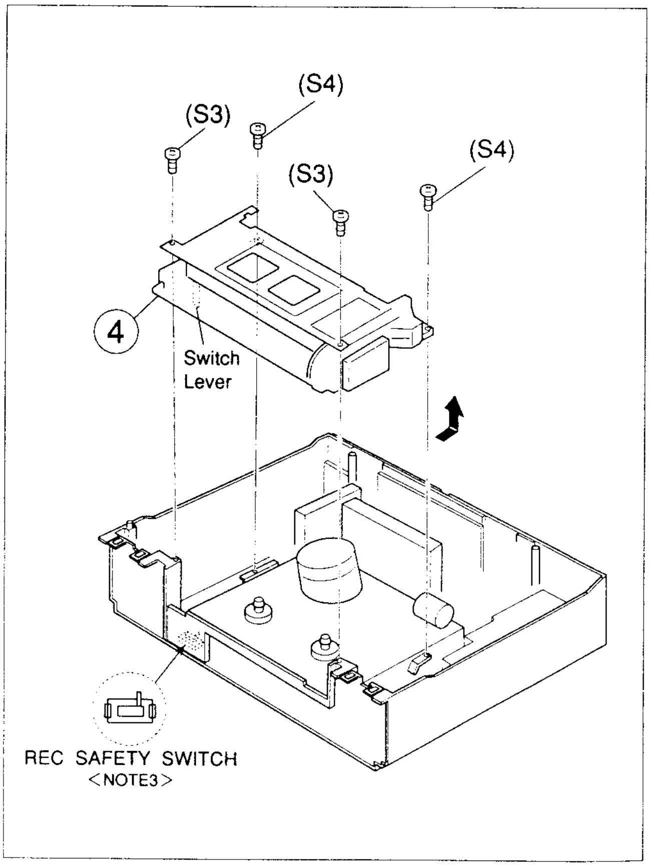

(S4)
(S3)
(S3)
(S4)
4
Switch
Lever
REC SAFETY SWITCH
<NOTE3>

Fig. D4

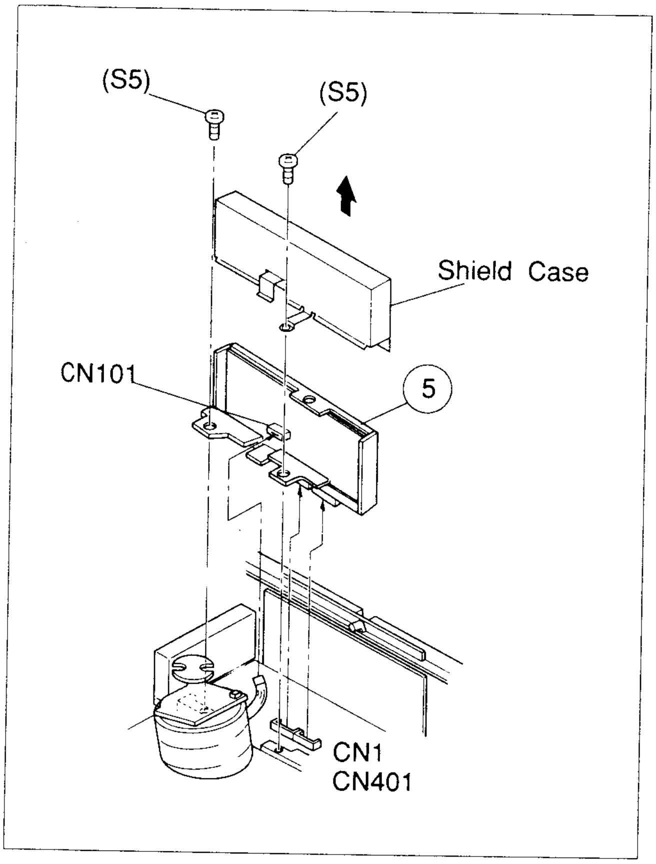

(S5)
(S5)
Shield Case
CN101
5
CN1
CN401

Fig. D5

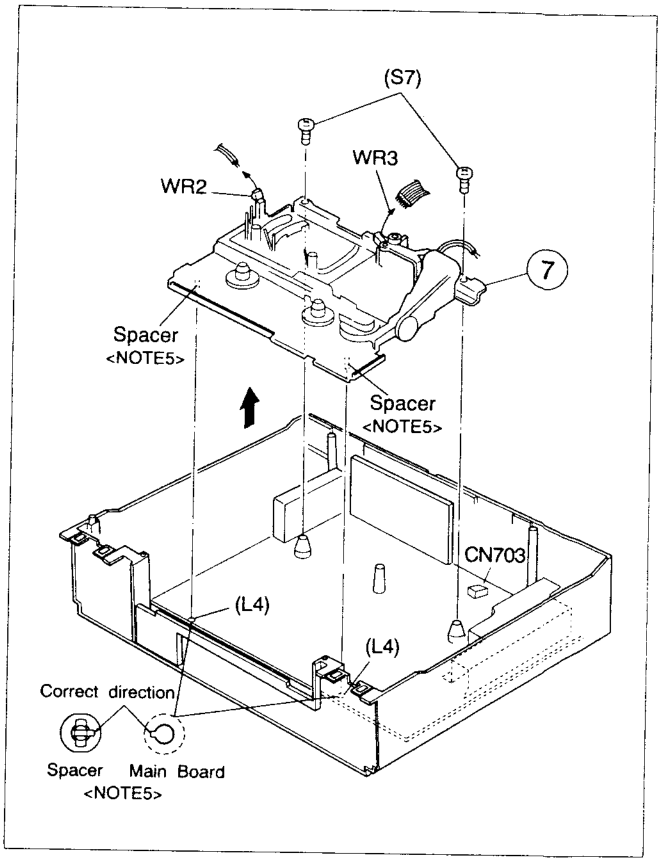

(S7)
WR2
WR3
7
Spacer
<NOTE5>
Spacer
<NOTE5>
CN703
(L4)
(L4)
Correct direction
Spacer
<NOTE5>
Main Board

Fig. D7

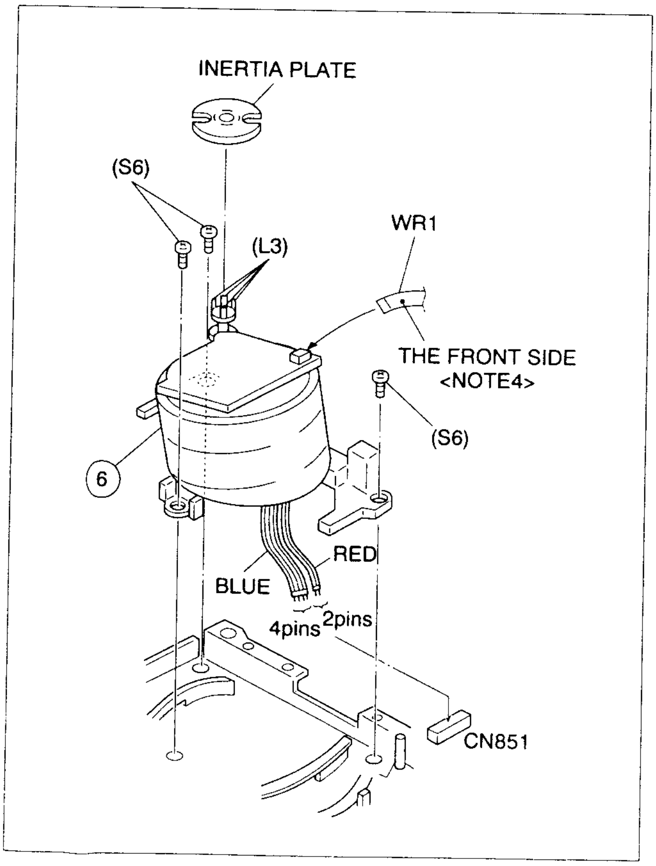

INERTIA PLATE
(S6)
(L3)
WR1
THE FRONT SIDE
<NOTE4>
(S6)
6
RED
BLUE
4pins
2pins
CN851

Fig. D6

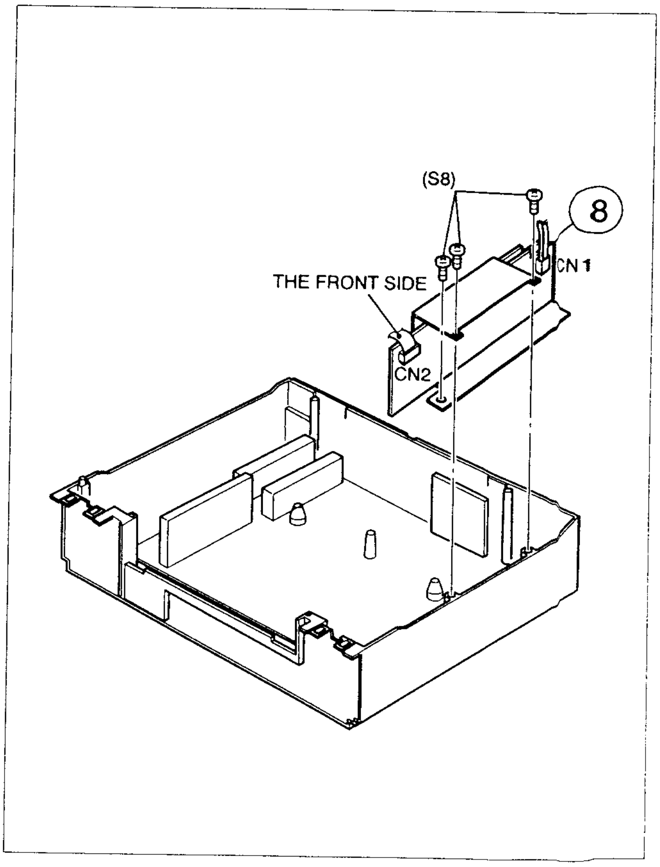

(S8)
8
CN1
THE FRONT SIDE
CN2

Fig. D8

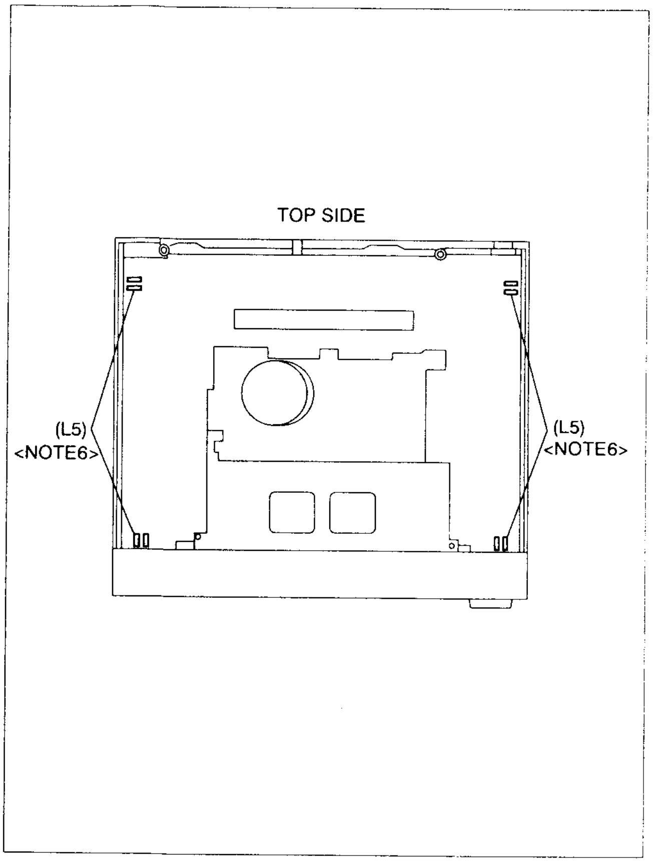

TOP SIDE
(L5)
<NOTE6>
(L5)
<NOTE6>

Fig. D9

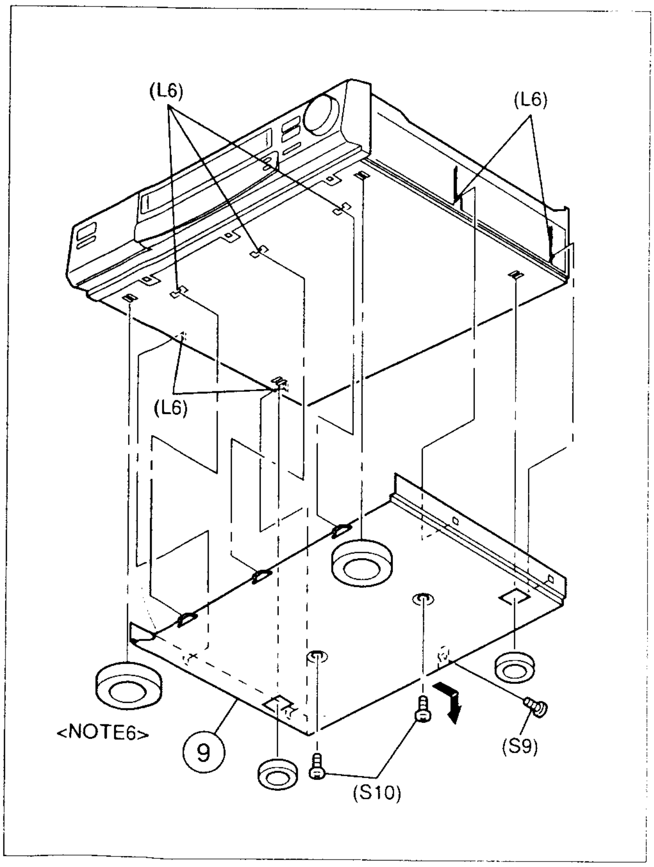

(L6)
(L6)
(L6)
<NOTE6>
9
(S10)
(S9)

Fig. D10

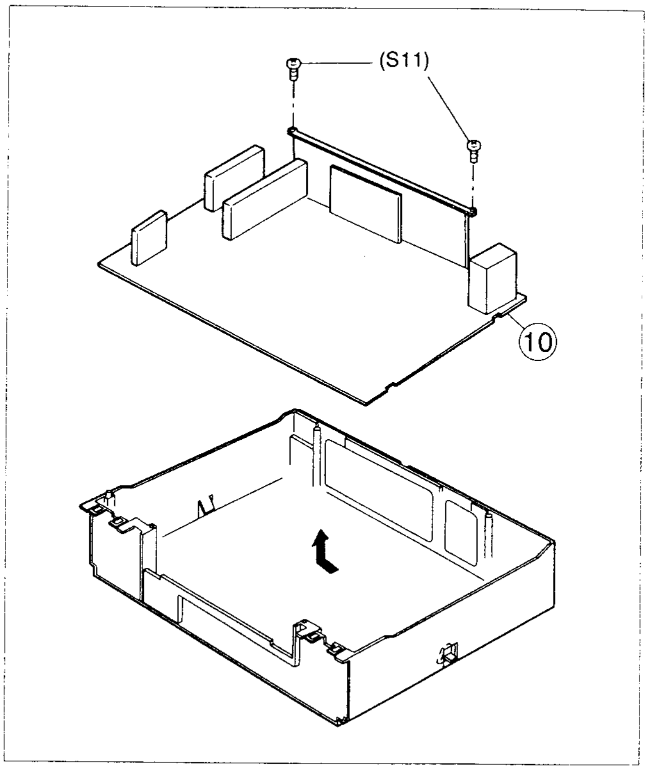


Fig. D11

1.4 CASSETTE HOUSING INSTALLATION

NOTE: *Observe the mechanical phase and position (see figure) when installing the cassette housing assembly. If these are incorrect, the system will not operate properly even when tape is inserted.*

1. Check that the hole of the control cam are aligned to the deck hole. If necessary, turn the loading motor belt by hand to adjust the position.

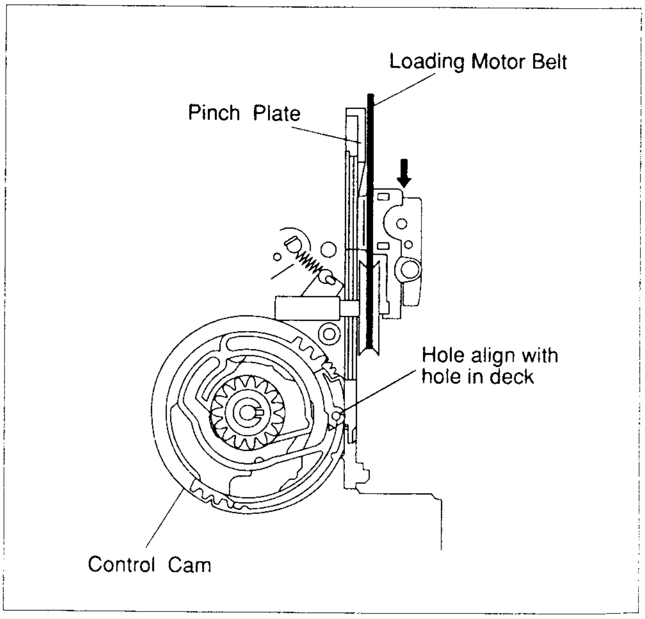

Loading Motor Belt
Pinch Plate
Hole align with hole in deck
Control Cam

Fig. 1-4-1

1.5 SERVICE POSITION

1.5.1 How to take out the Mechanism and Main board assemblies.

(1) Remove the Top cover, Front panel assembly, CN4 of the SW/JACK board assembly and CN1 of the DISPLAY board assembly.

(2) Take out 7 screws Ⓐ, 2 screws Ⓑ and 1 screw Ⓒ as shown in Fig.1-5-1.

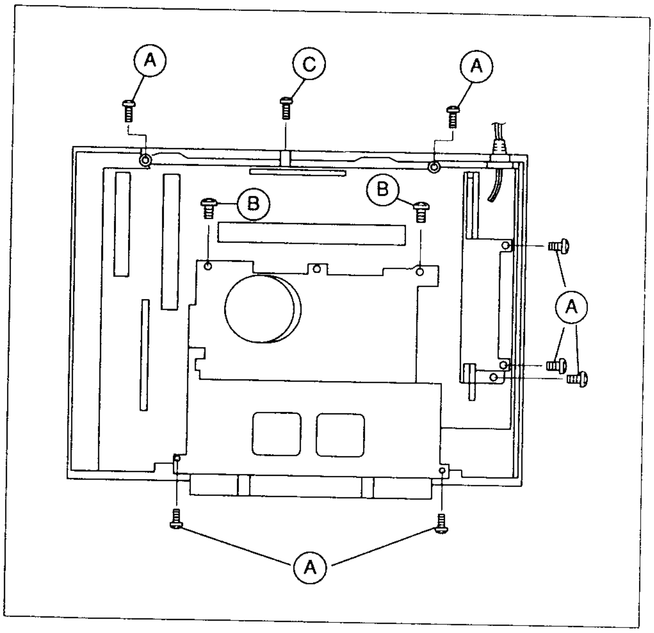


Fig. 1-5-1

(3) Remove the bottom cover. (Refer to Fig. D9 and Fig. D10)

(4) Remove the Mechanism assembly (including Cassette housing), Switching Regulator board assembly and Main board assembly out of the chassis as shown in Fig. 1-5-2.

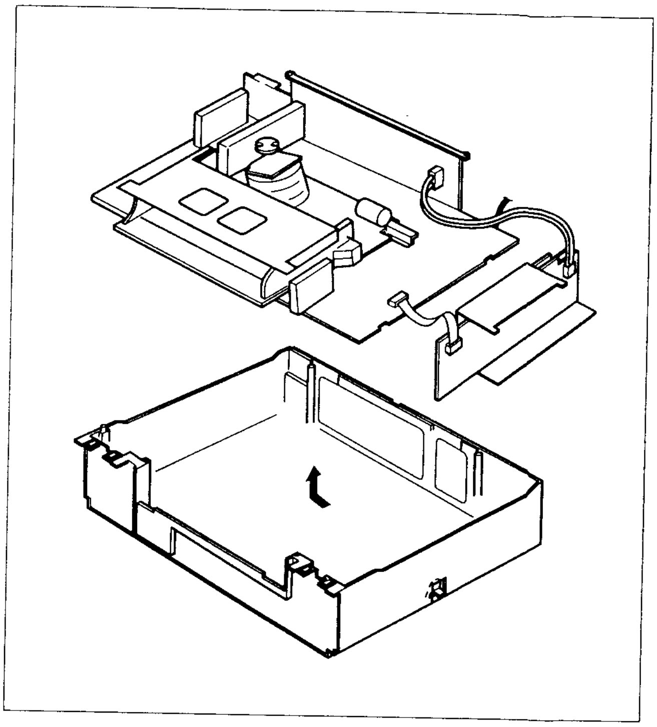


Fig. 1-5-2

(6) Turn over the Mechanism assembly and Main board assembly then connect CN1 of the DISPLAY board assembly.

(7) Carry out checks & repairs as necessary as shown in Fig.1-5-3.

Note: *When input the AUDIO/VIDEO signal from connector, connect CN4 of the SW/JACK board assembly.*

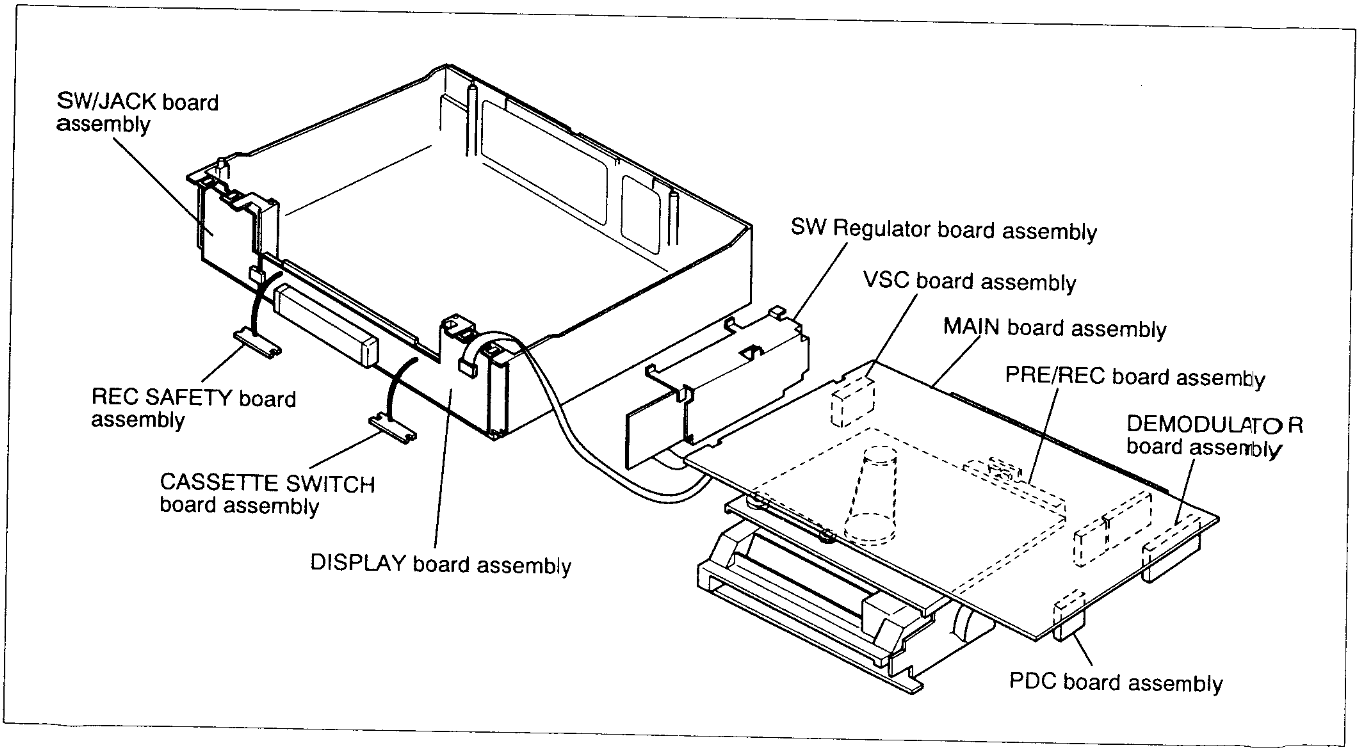

SW/JACK board assembly
REC SAFETY board assembly
CASSETTE SWITCH board assembly
DISPLAY board assembly
SW Regulator board assembly
VSC board assembly
MAIN board assembly
PRE/REC board assembly
DEMODULATOR board assembly
PDC board assembly

Fig. 1-5-3

1.5.2 Cautions on cassette loading when mechanism is in service position

The REC SAFETY board assembly of this set serves both for detecting the safety tab (erasure prevention tab) of a cassette and detecting a cassette loaded. Therefore, cassette loading in the condition that the mechanism is disassembled from the set needs manual operation of the switches of the REC SAFETY board assembly and the CASSETTE SWITCH board assembly.

1.5.3 Cassette loading and ejecting procedures when mechanism is in service position

(1) Insert a cassette tape halfway into the cassette housing assembly.

(2) Press the switch of the REC SAFETY board assembly to turn on.

(3) When the cassette loading begins and the cassette goes down to the bottom, immediately press the switch of the REC SAFETY board assembly to turn off and hold the status that the switch of the CASSETTE SWITCH board assembly is turned on. (Fix the switch with adhesive tape or put a screwdriver, etc. on it to leave the switch in the ON status.)

(4) In this status, desired operations (recording, playback, fast forward, rewind, etc.) can be performed.

Note: *When the mechanism is in the service position, the safety tab of cassette tape is not detected and recording on cassette tapes without safety tab is possible. Therefore, carefully choose a cassette tape for operation in this mode so as to avoid using cassette tapes of important recording.*

(5) For ejecting the cassette in this status, do it in the reverse order of cassette loading mentioned above.

Note: *If the manual operation REC SAFETY switch timing is incorrect, the cassette may be completely or partially ejected, and the cassette is often ejected incompletely. In such a case, it is possible to take out the cassette by hand.*

If it is desired to load a cassette again after the cassette is ejected in the above procedure, make sure to set the tray of the cassette housing assembly in the frontmost position prior to loading the cassette once again.

1.5.4 Opening on the chassis.

The chassis assembly has openings for easy access to the checkpoints and connector pins as shown in Fig.1-5-4.

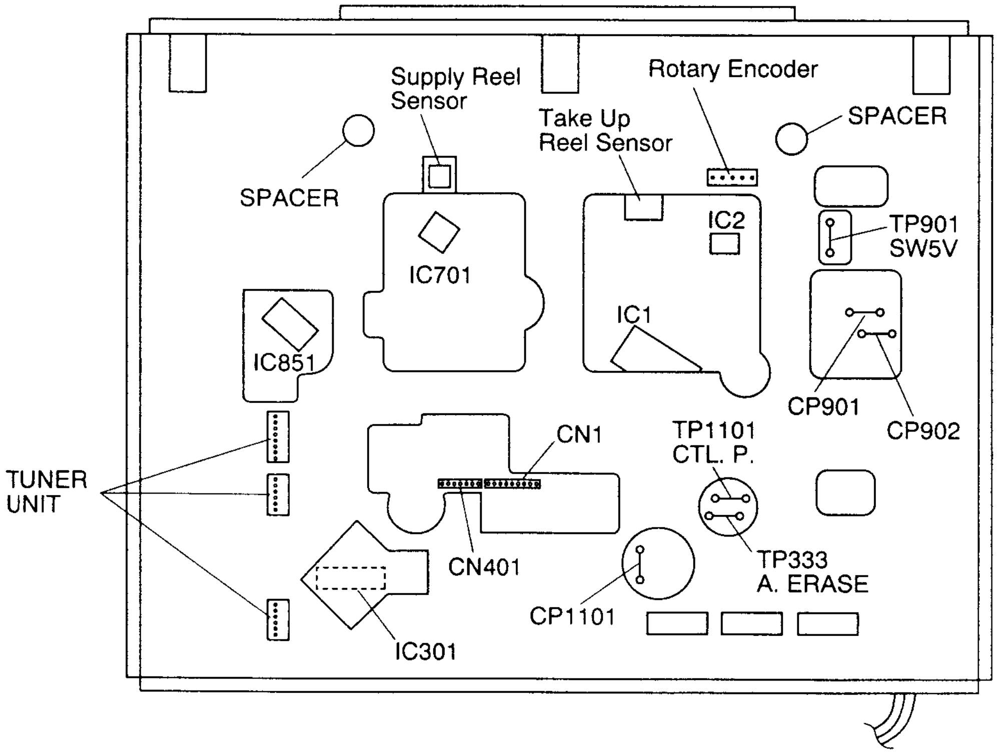


Fig. 1-5-4

1.6 MECHANISM SERVICE MODE

This model has a unique function to enter the mechanism into every operation mode without loading of any cassette tape. This function is called the "MECHANISM SERVICE MODE".

1.6.1 How to set the "MECHANISM SERVICE MODE"

(1) Disconnect VCR from AC.
(2) Remove the Top cover, Front panel assembly and cassette housing assembly. (See Page 1-2, 1-3)
(3) Connect TP2 (GND) and TP1 (TEST) on the DISPLAY board assembly with a jump wire.
(4) Connect VCR to AC.
(5) Press the POWER button.
(6) Select the desired operation modes with the operation buttons or remote controller.

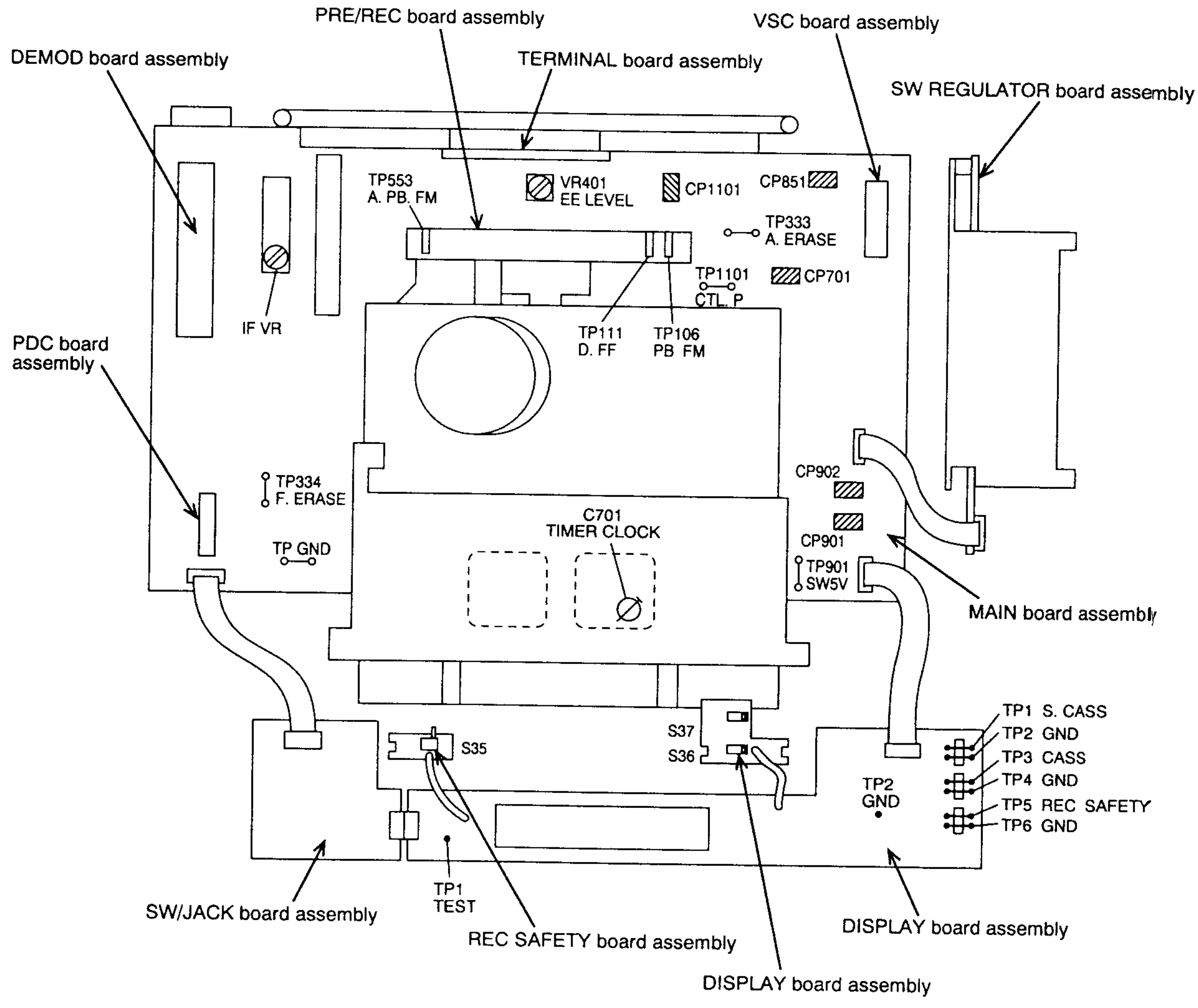

PRE/REC board assembly
VSC board assembly
DEMOD board assembly
TERMINAL board assembly
SW REGULATOR board assembly
TP553
A. PB. FM
VR401
EE LEVEL
CP1101
CP851
TP333
A. ERASE
TP1101
CTL. P
CP701
IF VR
TP111
D. FF
TP106
PB FM
PDC board assembly
TP334
F. ERASE
CP902
C701
TIMER CLOCK
CP901
TP GND
TP901
SW5V
MAIN board assembly
TP1 S. CASS
TP2 GND
TP3 CASS
TP4 GND
TP5 REC SAFETY
TP6 GND
S35
S37
S36
TP2
GND
TP1
TEST
SW/JACK board assembly
REC SAFETY board assembly
DISPLAY board assembly
DISPLAY board assembly

Fig. 1-6-1

1.7 EMERGENCY DISPLAY FUNCTION

This product has the function to store the last two previous emergency faults which can be displayed in the FDP when servicing.

1.7.1 How to display record of an emergency faults

(1) Press "N" button of the presetting unit more than 2 seconds. and the two previous emergency faults are shown in the FDP.
(2) Press "N" button of the presetting unit again when return to the normal mode.

[Example] E : 01 : 03

Emergency fault before last

Emergency fault of the last time

[Example] E : — — : — — ← No record of emergency

1.7.2 Detail of emergency faults

FDP	Symptom	Detect mode	Resulting mode
E : 01	Loading motor rotates for more than 8 Sec without shift to next mode.	Loading	POWER OFF
E : 02	Loading motor rotates for more than 8 Sec without shift to next mode.	Unloading	POWER OFF
E : 03	SUP or TU REEL FG input is absent (for more than 4 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 04	DRUM FF input is absent(for more than 3 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP
E : 06	CAPSTAN FG input is absent(for more than 1 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 07	No SWD5V/12V	POWER ON	POWER OFF
E : 08	Initialized action of DD (Dynamic Drum) is not complete for less than 4 seconds.	Connect VCR to AC	STOP
E : 09	DD drive motor is not rorate for more than 2.5 seconds.	on TIME SCAN	STOP

Table 1-7-1 EMERGENCY FAULTS

1.7.3 How to clear emergency record

Press the COUNTER RESET button on the remote controller in the emergency record display mode,and the record of the emergency fault(s) is cleared.

SECTION 2
MECHANISM ADJUSTMENT

2.1 PREPARATION

2.1.1 Precautions

(1) Disconnect VCR from AC power before soldering.
(2) Avoid imparting stress to wires when disengaging connectors.
(3) Determine and correct the cause of difficulty before proceeding to adjustments.Do not disturb settings unnecessarily.
(4) Use care not to damage tabs,claws,etc during repairs.
(5) Install the cassette housing assembly only when the mechanism is in the MECHANISM ASSEMBLING MODE position.
(6) When installing the Front panel assembly,be sure to engage the housing door with the door opener of the cassette housing assembly.
If this is omitted,the cassette door will not open at Eject and the cassette can not be removed. (See SECTION 1 DISASSEMBLY.)

2.1.2 Check without cassette housing assembly.

Mechanism operations can be observed easily by removing the cassette housing assembly. Use the MECHANISM SERVICE MODE. (See SECTION 1 DISASSEMBLY.)

2.1.3 Manual removal of loaded tape

When the deck enters the emergency mode with cassette tape loaded and it can not be ejected by pressing the EJECT button,take out of the cassette tape according to the following procedure.

(1) Disconnect the power cord from AC outlet then take out the Top cover and Front panel assembly.
(2) Turn the loading motor on the Main deck assembly by hand in the unloading direction to where the pole base assembly (supply and take-up) is positioned below the cassette tape.At that time, pay careful attention to the tape not to get soiled with grease.
(3) Take out 4 screws of the cassette housing assembly.(See SECTION 1 DISASSEMBLY.)
(4) Remove the cassette housing with slackened tape and guard panel of cassette.
(5) Wind up the tape by turning the reel hub(either supply or take-up side for convenience) from the bottom of the cassette,and remove the cassette tape.

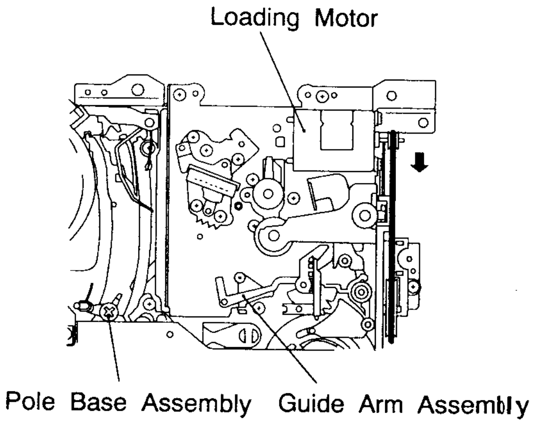


Fig. 2-1-1

2.1.4 Test Equipment

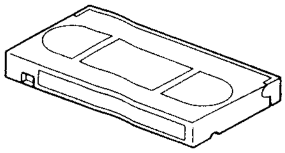
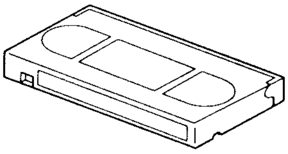
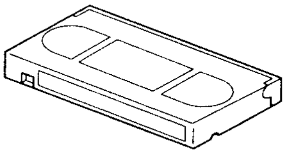
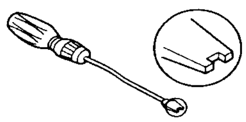
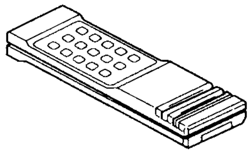
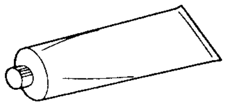
Alignment tape (SP) MHPE	Alignment tape (LP) MHPE-L	Back tension cassette gauge PUJ48076-2	A/C head positioning tool PTU94010
			
Roller driver PTU94002	Presetting unit PTU94008	Grease KYODO-SH-P	
			

Table 2-1-1 Test equipment

2.2 MAIN MECHANISM PARTS

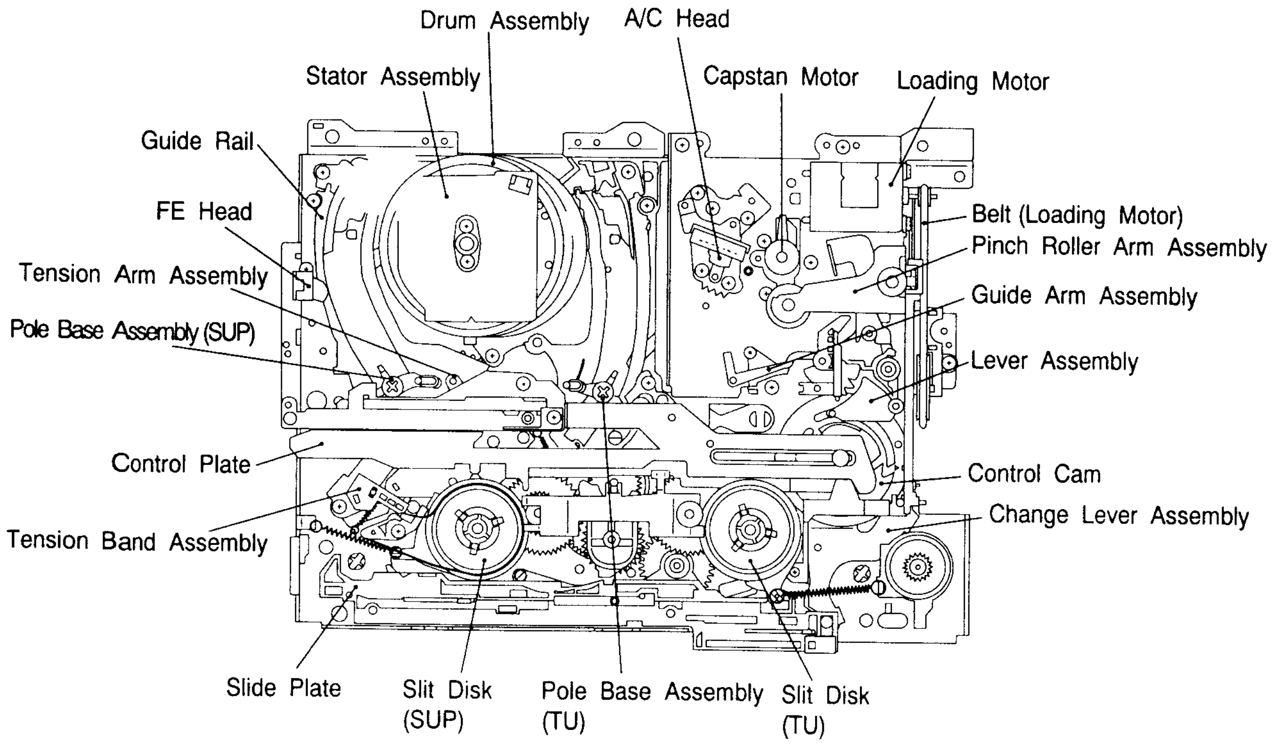

Drum Assembly
A/C Head
Stator Assembly
Capstan Motor
Loading Motor
Guide Rail
FE Head
Tension Arm Assembly
Pole Base Assembly (SUP)
Belt (Loading Motor)
Pinch Roller Arm Assembly
Guide Arm Assembly
Lever Assembly
Control Plate
Control Cam
Change Lever Assembly
Tension Band Assembly
Slide Plate
Slit Disk (SUP)
Pole Base Assembly (TU)
Slit Disk (TU)

Fig. 2-2-1 Top view of main deck

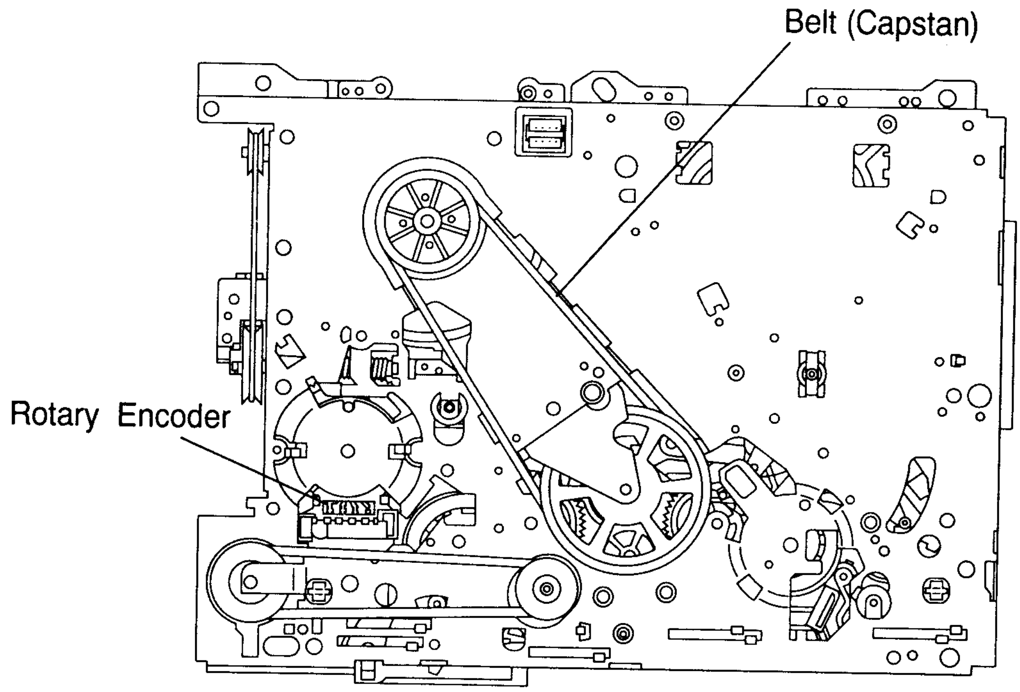


Fig. 2-2-2 Bottom view of main deck

2.2.1 Cleaning

Periodic cleaning of the tape transport system is desirable,but usually not feasible in practice.Therefore,perform cleaning when a set is brought in for repairs or maintenance. Contamination of the video heads,tape guides and brush can detract from playback picture quality and in extreme cases,even damage the tape.For cleaning,use a finemesh cotton cloth(about the texture of a white dress-shirt) moistened in alcohol. It is recommended to also clean thetape tension posts and capstan.

- To clean the video heads,press the moistened cloth gently against the upper drum with fingertip and turn the drum by hand.
- Do not use a vertical stroke,as this may damage the heads.

2.2.2 Lubrication

Oil and grease do not normally require periodic replenishing. Apply only when replacing lubricated parts(also clean and replace lubrication of mating parts if soiled). For parts and points to apply oil and grease, refer to the exploded views of the mechanism assembly. Before oiling,clean with alcohol. Apply one or two drops of oil. Avoid excess oil.

1. Table 2-2-1 indicates the oil and grease used in this set. Use these or recommended locally available equivalents.

Category	Part No.
Oil	COSMO-HV56
Grease	KYODO-SH-P

Table 2-2-1

2. Grease is not required for a replacement cassette housing assembly,as this has been applied at the factory.

NOTE : *Stir grease that has been stored for an extended period.*

2.3 INSPECTION AND MAINTENANCE

This product employs rotary and moving parts which wear out in the course of usage.Periodic inspection, cleaning, lubrication and maintenance are therefore important for ensuring maximum performance. Worn parts must also be replaced as and when required.

2.3.1 Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning,lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions.However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary. Also note that rubber parts may deform in time,even if the set is not used.

System	Parts Name	Operation Hours	
		~1000H	~2000H
Tape transport	Upper drum assembly	★○	○
	A/C head	★○	★○
	Lower drum motor assembly	★	★○
	Pinch roller arm assembly	★	★
	Full erase head	★	★
	Tension arm assembly	★	★
	Guide arm assembly	★	★
Drive	Capstan motor		○
	Belt (Capstan)	○	○
	Belt (Loading motor)		○
	Loading motor		○
	Slit disk (supply, take-up)		○
	Clutch unit (supply, take-up)		○
	Worm gear assembly		○
	Control plate		○
	Slide plate		○
Other	Brush assembly	★○	★○
	Tension band assembly	○	○
	Rotary encoder		○

★ : Cleaning
○ : Inspection or Replacement if necessary

Table 2-3-1

2.4 DISASSEMBLY/ASSEMBLY PROCEDURE OF MECHANISM

2.4.1 Precaution before disassembling mechanism

This mechanism has an exclusive operation mode provided for disassembling and installation of the mechanism (MECHANISM ASSEMBLING MODE), and it is suggested to set the mechanism to this mode before disassembly and installation.The exclusive mechanism operation mode is not generally used and becomes available by manual setting only. Then this procedure starts with the condition that the cabinet parts,cassette housing assembly and PRE/REC board assembly have been removed.

2.4.2 How to set the exclusive mechanism operation mode (MECHANISM ASSEMBLING MODE)

(1) Turn the loading motor belt by hand.
(2) Confirm that the hole of the control cam are aligned to the deck hole as shown in Fig.2-4-1.

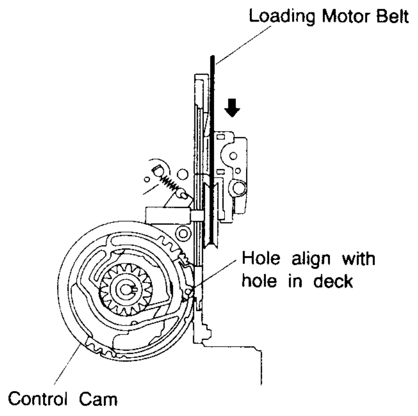


Fig. 2-4-1

2.5 MAIN PARTS REPLACEMENT OF MECHANISM

2.5.1 Pinch Rollar Arm Assembly

(1) Remove the slit washer.
(2) Tilt up the pinch rollar assembly in direction of arrow.

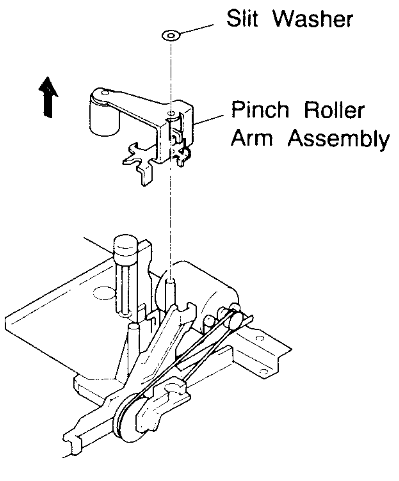


Fig.2-5-1

2.5.2 A/C Head

1. Removal

(1) Take out 2 screws (A).

(2) Remove the A/C head with head base.

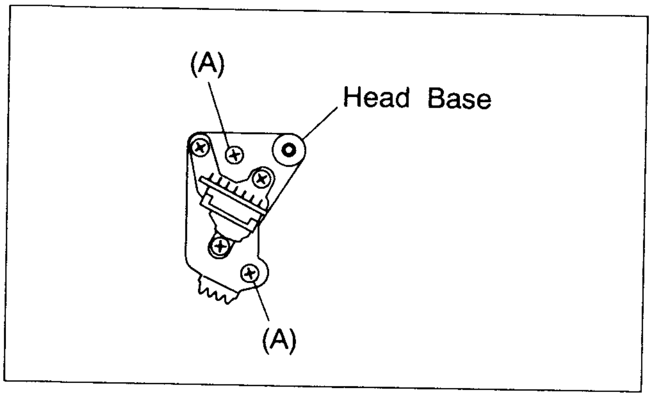

(A)
Head Base
(A)

Fig.2-5-2

(3) When replacing the A/C head only,remove 3 screws (B), use care not to misplace the 4 springs.

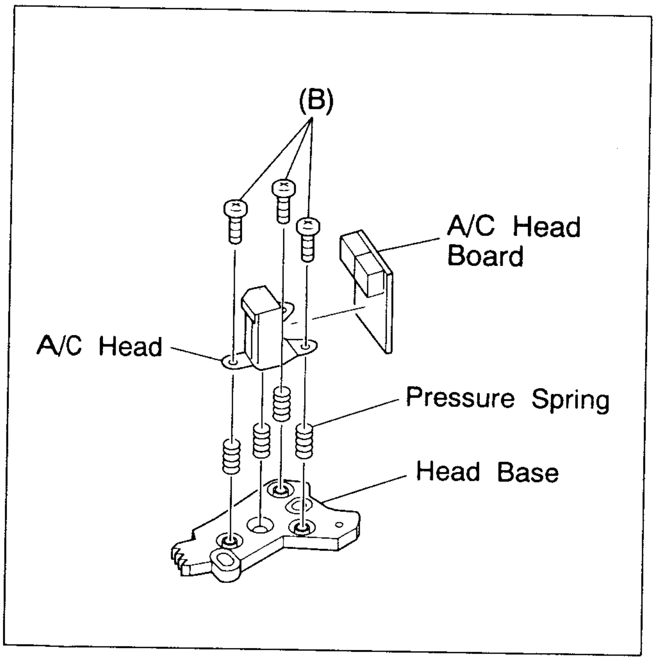
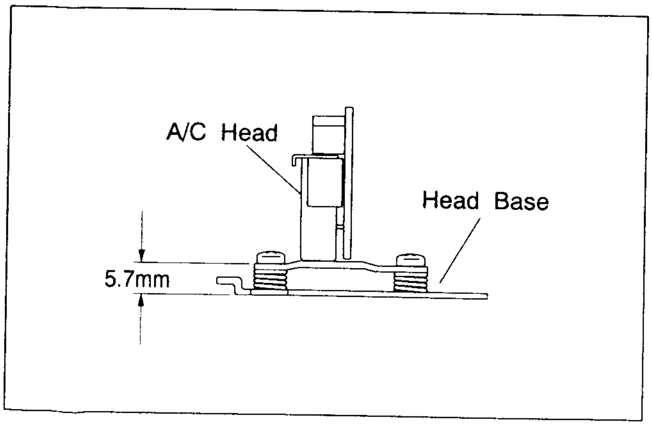

(B)
A/C Head Board
A/C Head
Pressure Spring
Head Base

Fig.2-5-3

2. Installation

(1) Temporarily set A/C head height as indicated in Fig. 2-5-4.


A/C Head
Head Base
5.7mm

NOTES:

- *It is very important to correctly adjust the control pulse and audio signal in addition to the mechanical tape path.*
- *Perform interchangeability adjustments after electrical adjustments.*

2.5.3 Pinch Plate

1. Removal

(1) Disengage 2 claws, then remove the pinch plate.

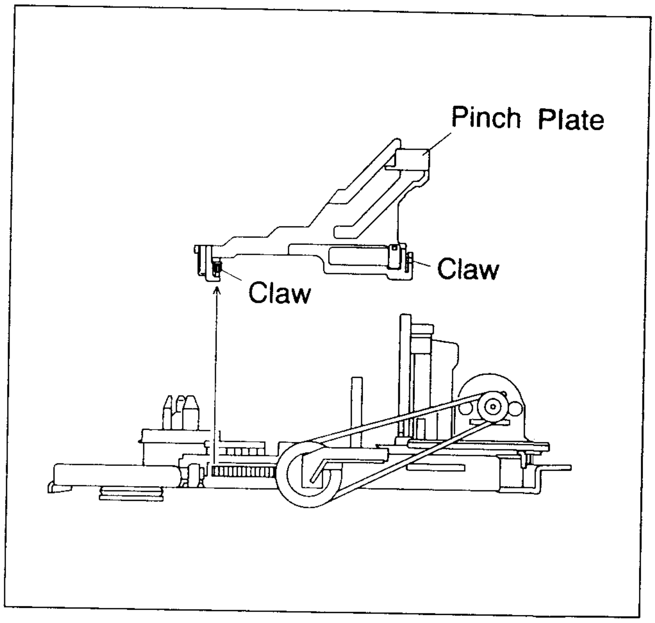

Pinch Plate
Claw
Claw

Fig.2-5-5

2. Installation

(1) When installing pinch plate,align rack of pinch plate and triangle mark of control cam as indicated in Fig.2-5-6.

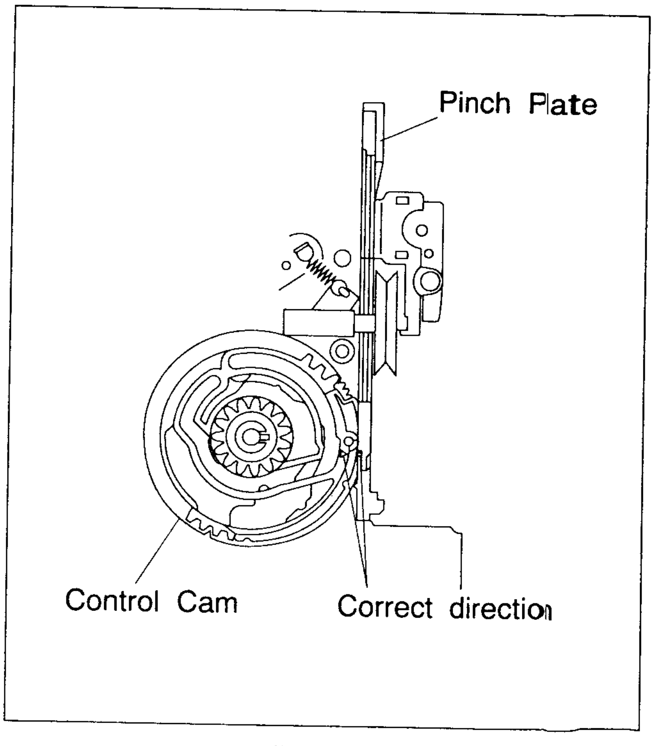

Pinch Plate
Control Cam
Correct direction

Fig. 2-5-6

2.5.4 Loading Motor

(1) Disengage the belt between loading motor and worm gear.

(2) Take out 2 screws (A), 1 screw (B) and the motor guide then remove the loading motor.

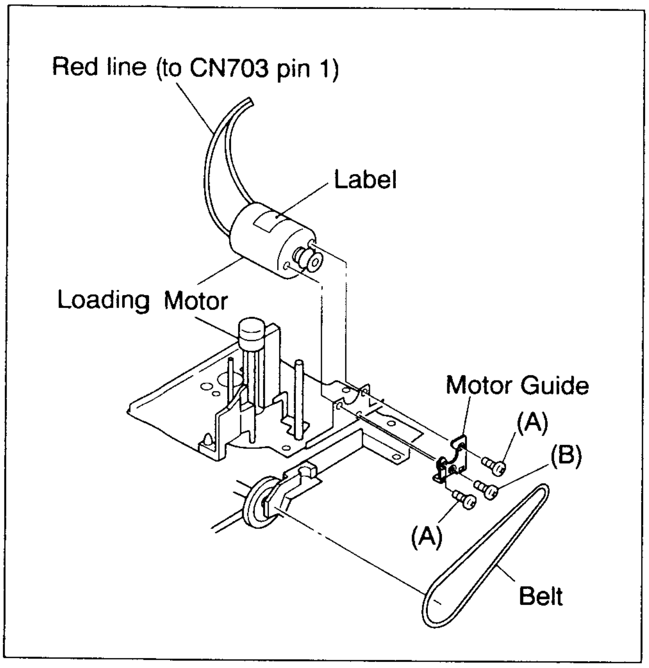

Red line (to CN703 pin 1)
Label
Loading Motor
Motor Guide
(A)
(B)
(A)
Belt

Fig.2-5-7

2.5.5 Lever Assmebly,Sub Deck Assembly,Capstan Motor

(1) Take out 1 slit washer,then remove the lever assembly.

(2) Disengage the belt(capstan motor) from bottom of mechanism assembly first as indicated in Fig.2-5-10.

(3) Take out 2 screws (A), 1 screw (B) and remove the sub deck assembly as indicated in Fig.2-5-8.

(4) Take out 3 screws (C) and remove the capstan motor from the sub deck assembly as indicated in Fig.2-5-9.

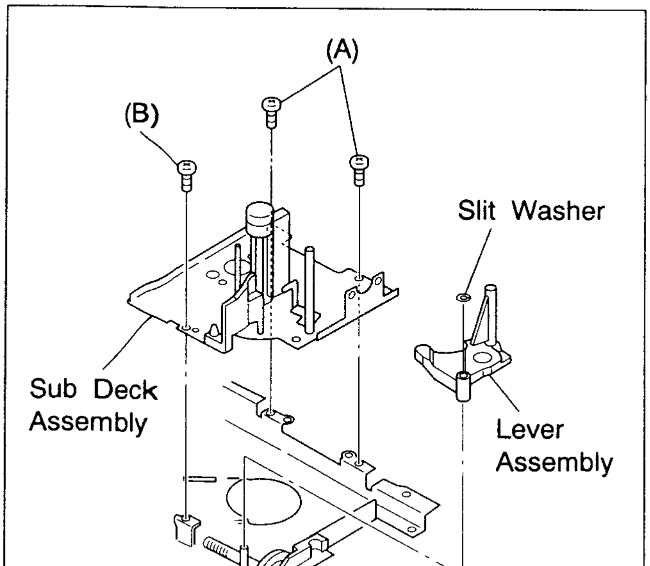

(A)
(B)
Slit Washer
Sub Deck Assembly
Lever Assembly

Fig.2-5-8

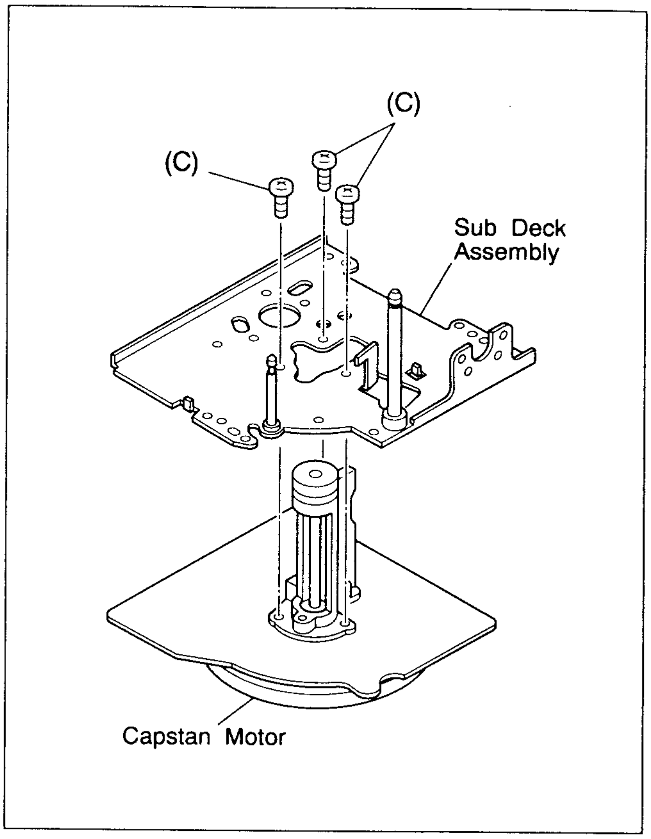

(C)
(C)
Sub Deck Assembly
Capstan Motor

Fig.2-5-9

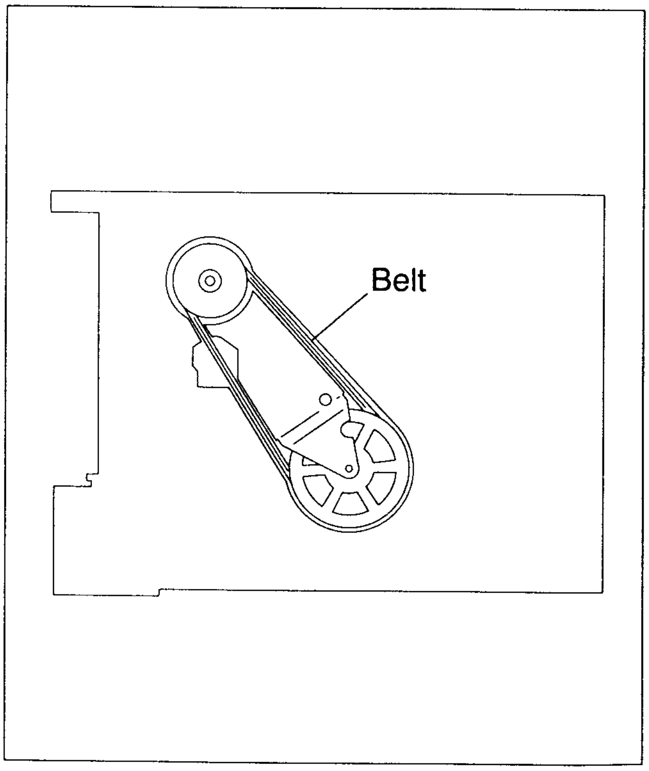


Fig.2-5-10

2.5.6 Control Bracket-1

(1) Take out 1 screw (A) and 1 screw (B).
(2) Remove the control bracket-1.

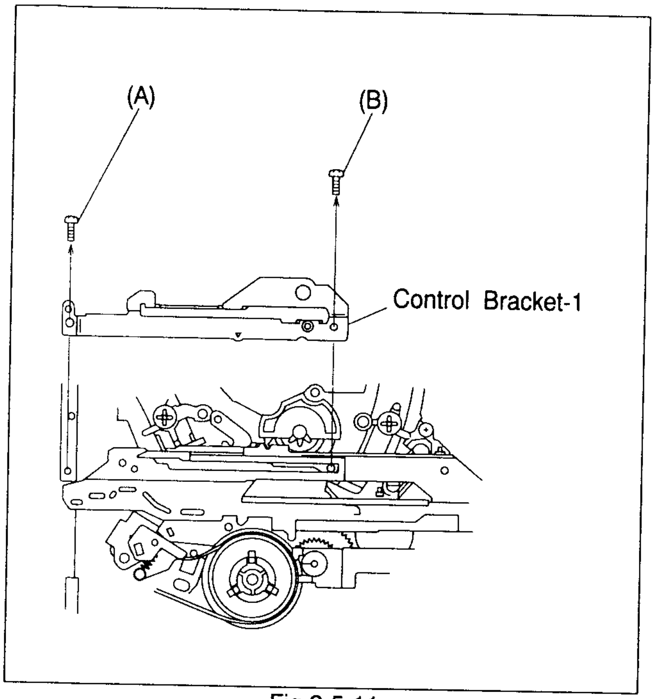
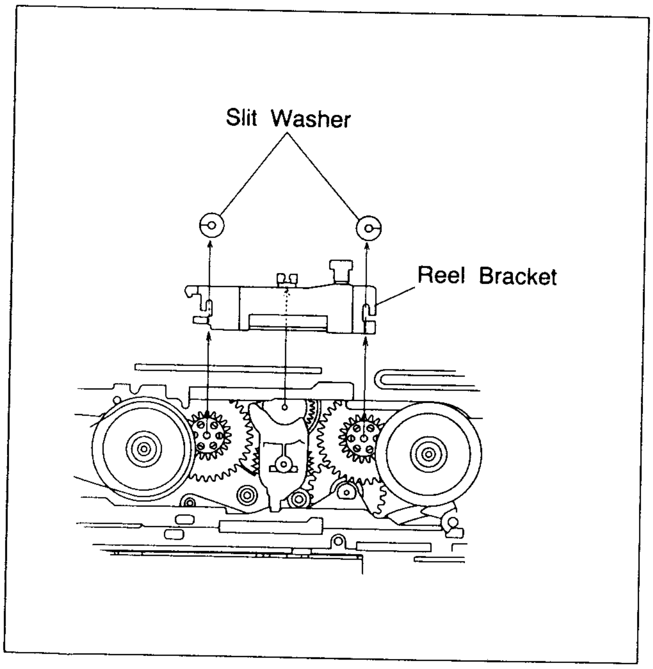

(A)
(B)
Control Bracket-1

Fig.2-5-11

2.5.7 Reel Bracket,Slit disk (take-up),Control Bracket-2

(1) Take out 2 slit washers.
(2) Remove the reel bracket and slit disk(take-up).
(3) Take out 1 screw (A) and remove the control bracket-2.


Slit Washer
Reel Bracket

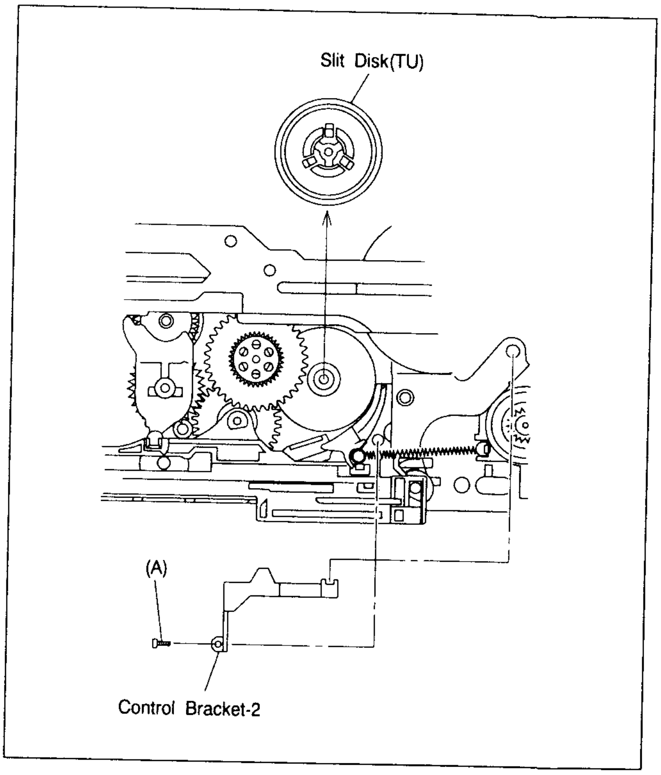

Slit Disk(TU)
(A)
Control Bracket-2

Fig.2-5-13

2.5.8 Control Plate

(1) Take out 1 slit washer.
(2) Disengage 2 claws and remove the control plate.

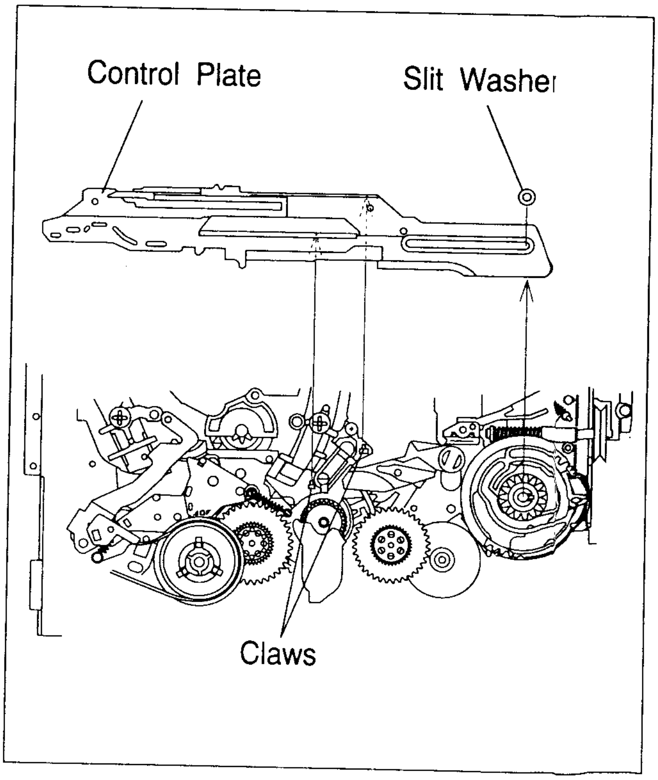

Control Plate
Slit Washer
Claws

Fig.2-5-14

2.5.9 Sub Brake(take-up),Control Cam

(1) Disengage 1 spring (a) and 1 claw then remove the sub brake (take-up).

(2) Disengage 1 claw and remove the control cam.

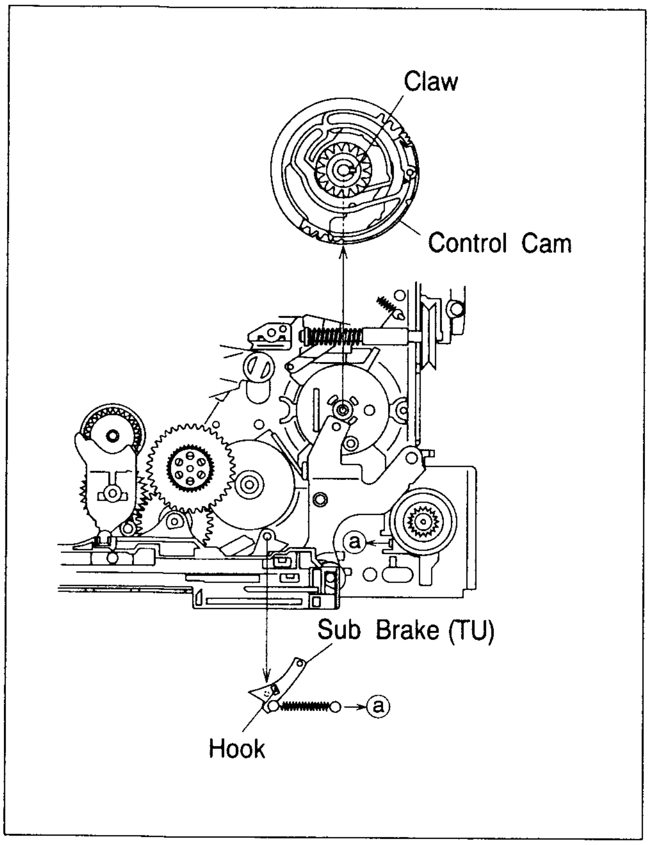

Claw
Control Cam
a
Sub Brake (TU)
a
Hook

Fig.2-5-15

2.5.10 Slide Plate

(1) Disengage 7 claws from bottom of the mechanism assembly and remove the slide plate.

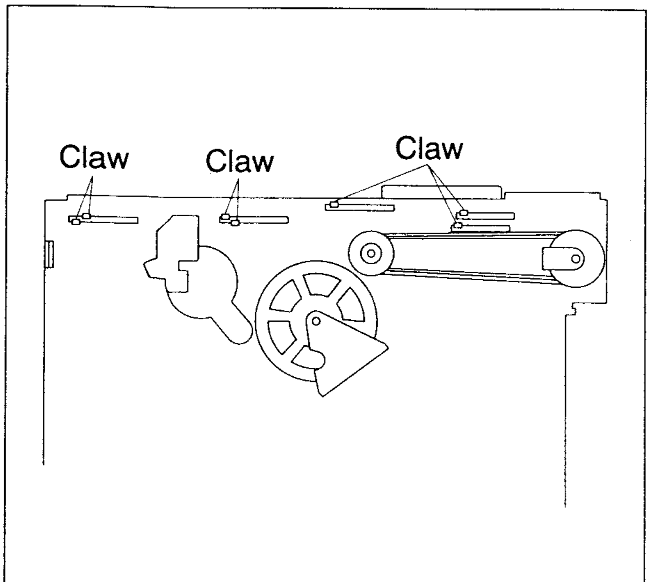

Claw
Claw
Claw

Fig. 2-5-16

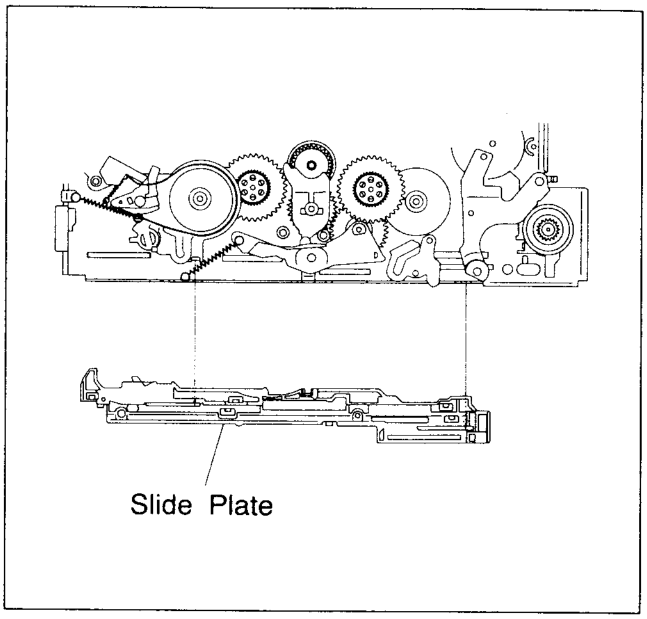

Slide Plate

Fig. 2-5-17

2.5.11 Change Lever,Rotary Encoder

(1) Remove the change lever.

(2) Disengage 2 claws and remove the rotary encoder.

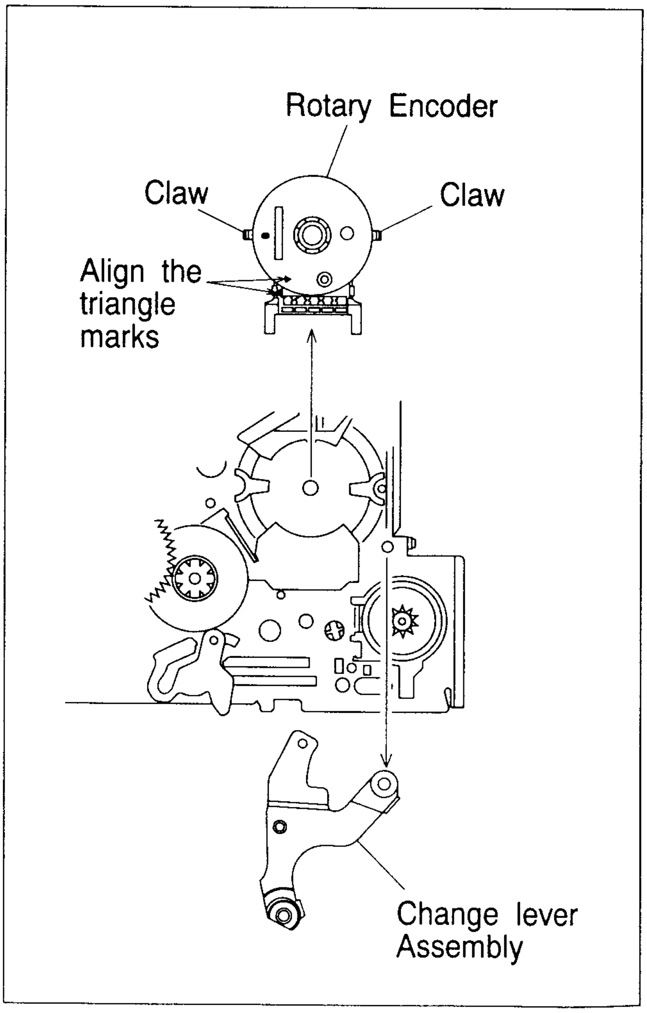

Rotary Encoder
Claw
Claw
Align the triangle marks
Change lever Assembly

Fig. 2-5-18

2.5.12 Sub Brake (supply),Tension Band Assembly,Tension Arm Assembly,Take-up Lever Assembly,Slit Disk(supply)

(1) Disengage 1 spring (a).

(2) Disengage 1 claw and remove the sub brake (supply).

(3) Take out 1 screw (A),spring (c) and slit washer.

(4) Remove the tension arm assembly with tension band assembly.

(5) Disengage 1 spring (b) and remove the take-up lever assembly.

(6) Remove the slit disk(supply).

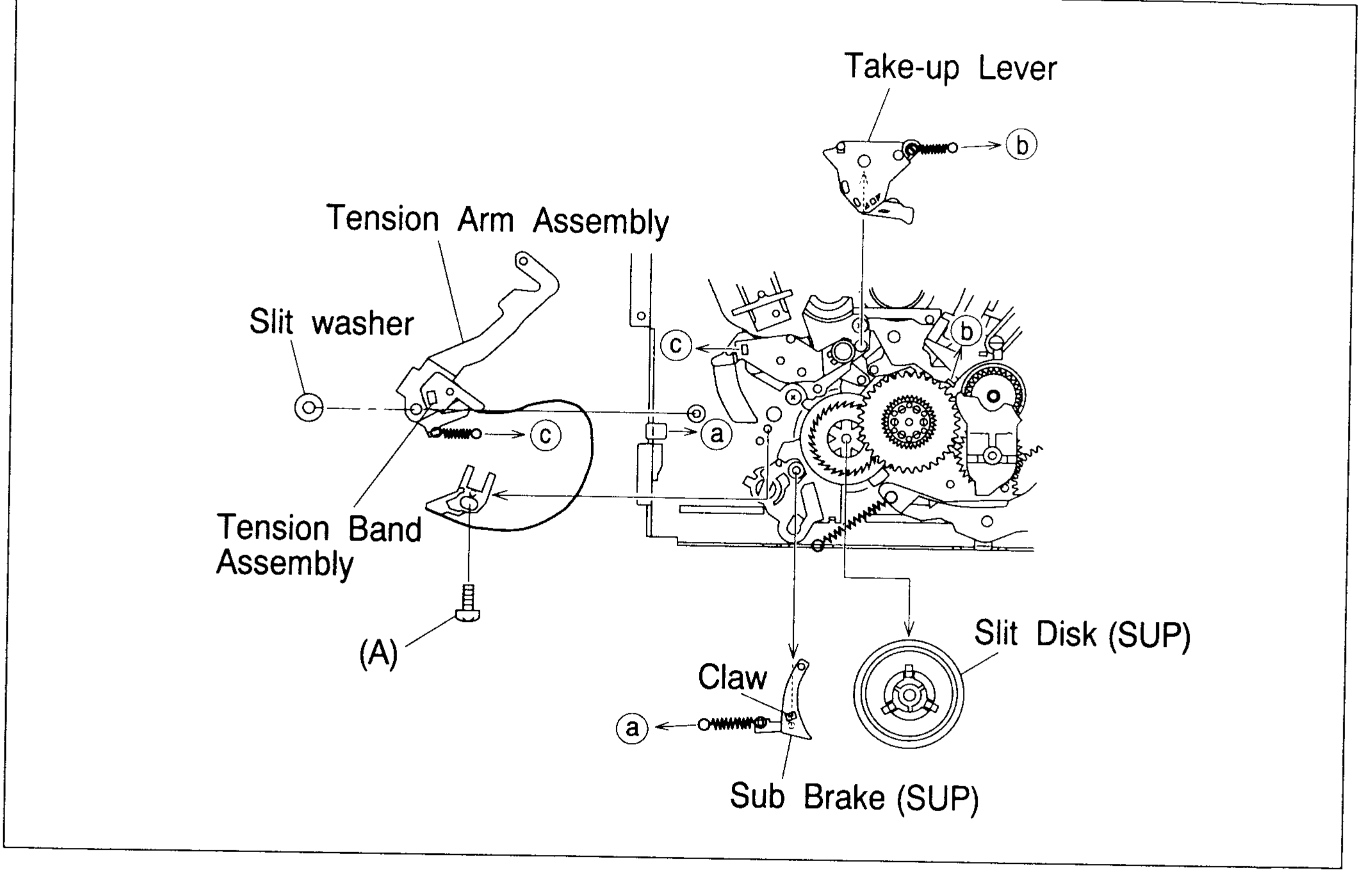

Take-up Lever
ⓑ
Tension Arm Assembly
Slit washer
ⓒ
ⓒ
ⓐ
ⓑ
Tension Band Assembly
(A)
Slit Disk (SUP)
Claw
ⓐ
Sub Brake (SUP)

Fig. 2-5-19

2.5.13 Take-up Head,Tension Arm Lever

(1) Remove the take-up head and tension arm lever.

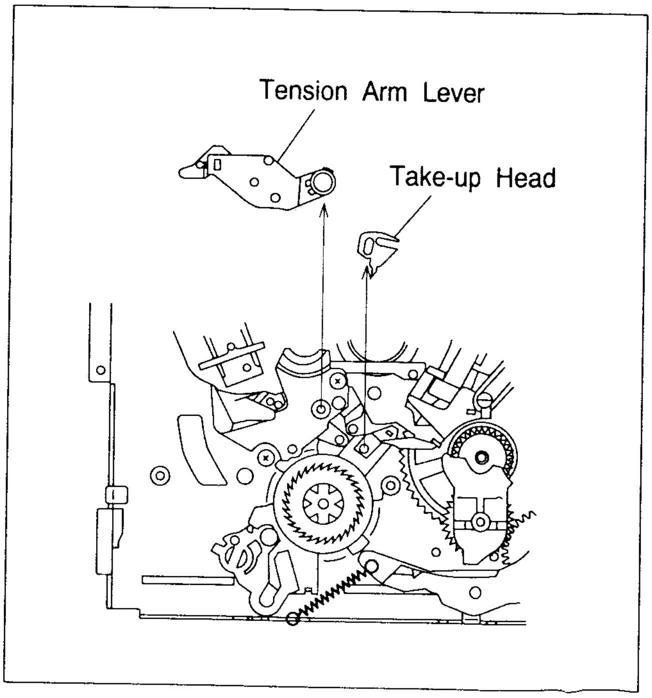
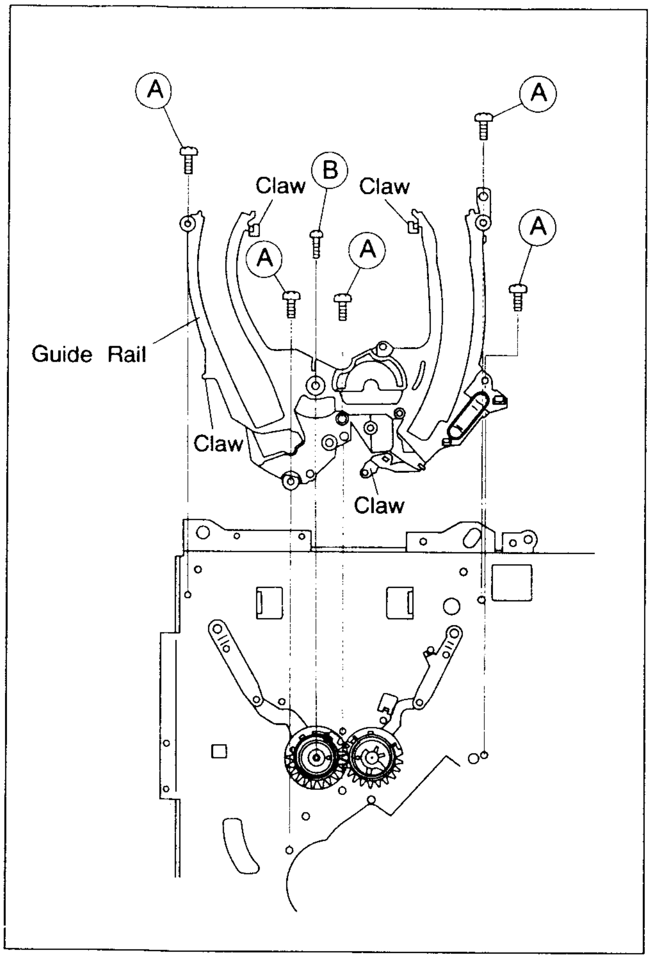

Tension Arm Lever
Take-up Head

Fig.2-5-20

2.5.14 Guide Rail

(1) Take out 5 screws (A) and 1 screw (B).

(2) Disengage 4 claws and remove the guide rail.



A
A
B
Claw
Claw
A
A
A
Guide Rail
Claw
Claw

Fig. 2-5-21

2.5.15 Stator Assembly

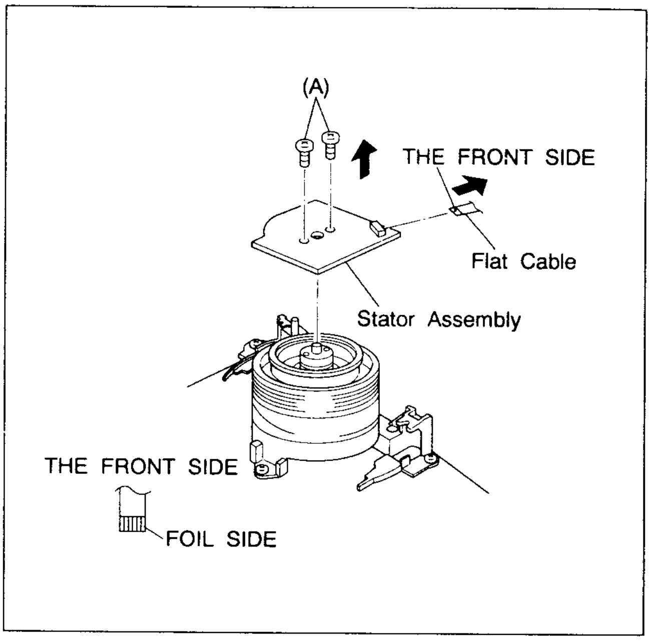
(1) Take out 2 screws (A).

(2) Raise the stator assembly in the direction indicated by the arrow to remove it.

(3) Remove the flat cable.

(4) To reinstall,first secure the flat cable,then insert 2 screws (A).

(5) After reinstalling, be sure to perform PB switching point adjustment(See SECTION 3 ELECTRICAL ADJUSTMENT).



(A)
THE FRONT SIDE
Flat Cable
Stator Assembly
THE FRONT SIDE
FOIL SIDE

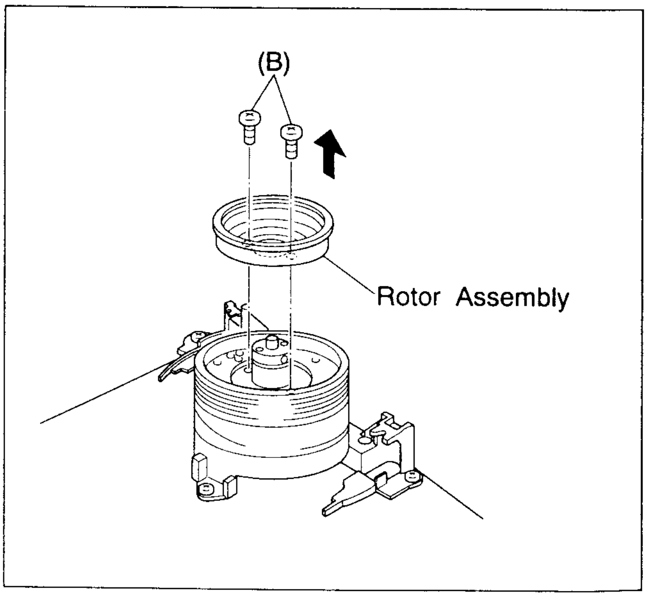
Fig. 2-5-22

NOTE : *When refitting the connector, check that the flat wire is inserted correctly.*

2.5.16 Rotor Assembly

(1) Remove the stator assembly.

(2) Take out 2 screws (B) and remove the rotor assembly.



(B)
Rotor Assembly

Fig.2-5-23

(3) Align the upper dum assembly and rotor assembly phase as indicated in Fig.2-5-22.
(4) Overlap holes (a) of the upper drum assembly with holes (b) of the rotor assembly (align holes in 3 locations) and secure with 2 screws (B) as indicated in Fig.2-5-21.

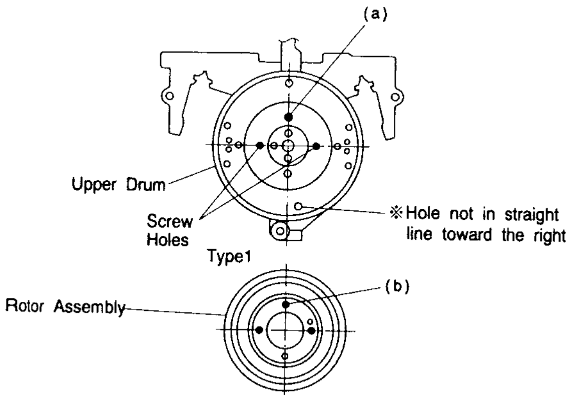

(a)
Upper Drum
Screw Holes
※Hole not in straight line toward the right
Type1
(b)
Rotor Assembly

Fig. 2-5-24

2.5.17 Upper Drum Assembly

1. Removal

(1) Remove the stator assembly and rotor assembly.
(2) Use a 1.5 mm hexagonal wrench to loosen the collar assembly screw and remove the collar assembly.
(3) Remove the upper drum assembly and use tweezers to remove the Washer.

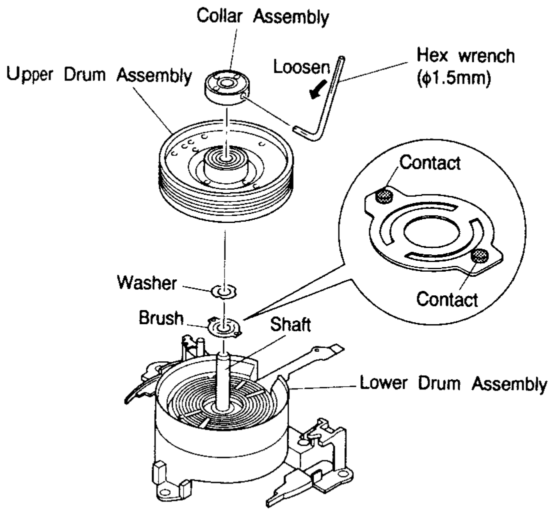

Collar Assembly
Upper Drum Assembly
Loosen
Hex wrench (ϕ1.5mm)
Contact
Contact
Washer
Brush
Shaft
Lower Drum Assembly

Fig. 2-5-25

NOTE: *When replacing the upper drum assembly,it is recommended to replace the brush.*

2. Installation

(1) Use an air brush to clean the lower drum assembly and the coil section of the new upper drum assembly.
(2) Set a new washer on the drum shaft as indicated in Fig.2-5-25.

NOTE : *Be sure to use the new washer when replace the upper drum assembly.*

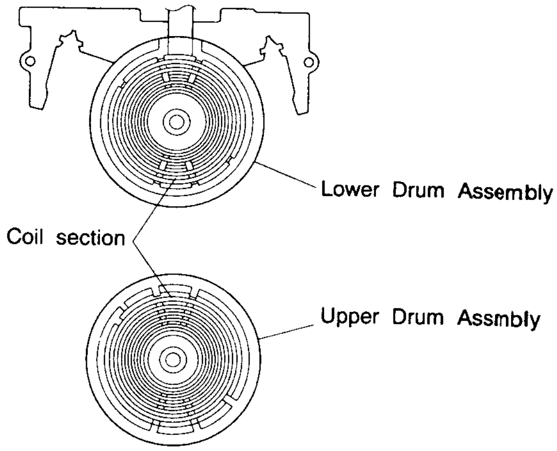

Lower Drum Assembly
Coil section
Upper Drum Assmbly

Fig.2-5-26

(3) Note the top and bottom of the collar assembly and determine the position as indicated in Fig.2-5-27.

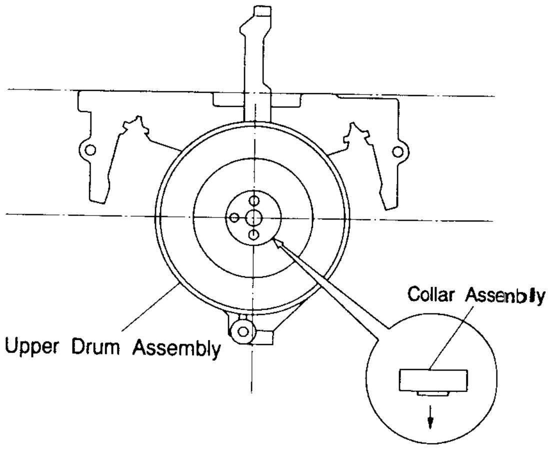

Collar Assenbly
Upper Drum Assembly

Fig.2-5-27

(4) While pressing the collar assembly evenly from above with your fingertips,secure the hexagonal screw.

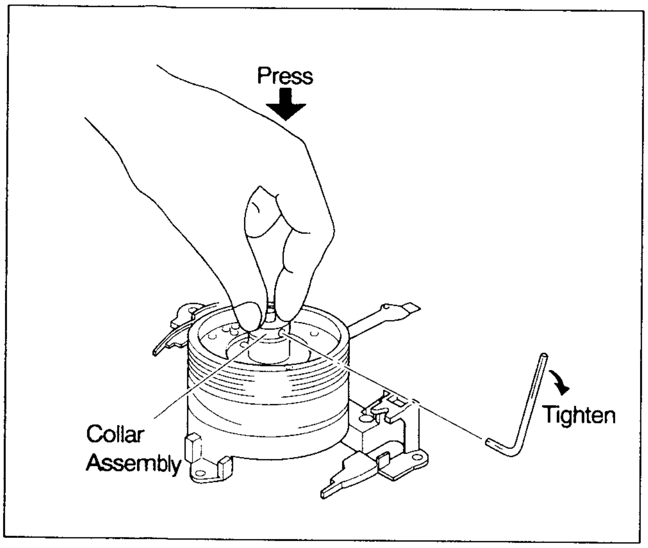

Press
Tighten
Collar Assembly

Fig.2-5-28

(5) After installing,gently turn the upper drum by hand and confirm normal rotation.

(6) Install the rotor assembly and stator assembly.

(7) Clean the upper and lower drum assemblies and perform the following adjustments;
- PB switching point adjustment
- Slow tracking preset adjustment
- Interchangeability adjustment (be sure to check LP mode)

2.6 CHECKUP AND ADJUSTMENT OF MECHANISM PHASE

2.6.1 Precaution

The rotary encoder and syscon circuit are closely interrelated.Therefore,the rotary encoder and control cam conection determines the operations of mechanical parts such as plates,gears,brakes,etc.Correct positioning of these parts is essential for smooth tape loading and mechanical operations.

2.6.2 Loadidg Arm Assemby (supply,take-up)

(1) Install the supply loading arm assembly and the take-up loading arm assembly so that their positioning markings on the respective gear face each other and the holes of their arms correspond to the holes on the main deck assembly respectively.

(2) After setting the guide rails,engage the pole base assemblies with the tip of the loading arms respectively. Then,enter the mechanism into the unloading mode to return the pole base assemblies to the front position.

(3) Reassemble the peripheral parts of the guide rail to its original position.

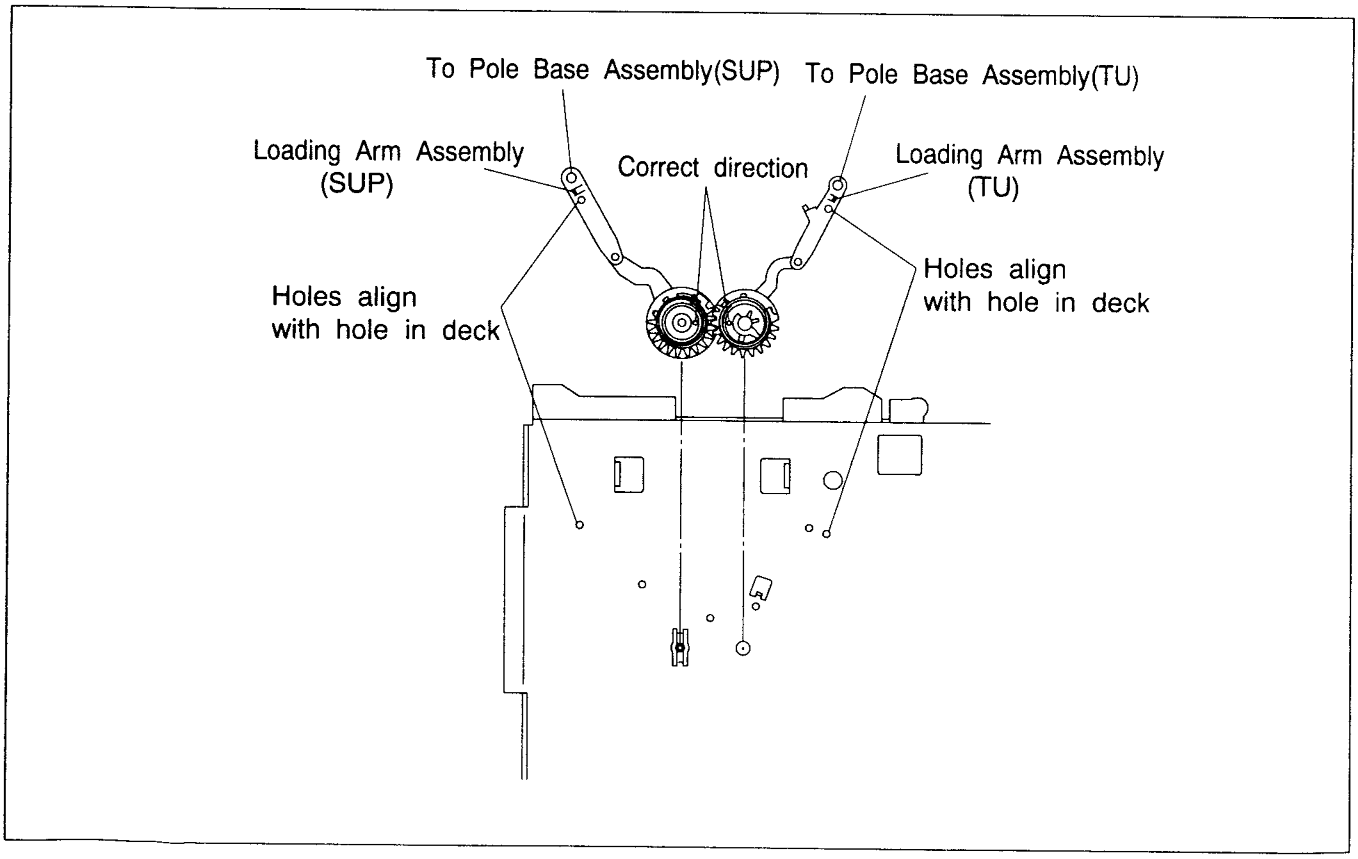

To Pole Base Assembly(SUP)
To Pole Base Assembly(TU)
Loading Arm Assembly (SUP)
Correct direction
Loading Arm Assembly (TU)
Holes align with hole in deck
Holes align with hole in deck

Fig. 2-6-1

2.6.3 Rotary Encoder,Change Lever,Control Cam

(1) When reinstalling the rotary encoder,adjust its position so as to fit the triangle marks each other and push it deep untill it is locked by the pawls.

(2) When reinstalling the change lever,set it so as to make its positioning hole correspond to the hole of the main deck assembly.

(3) When re-engaging the control cam,lower the capstan brake assembly while setting it so as to make its positioning hole correspond to the hole of the main deck assembly.

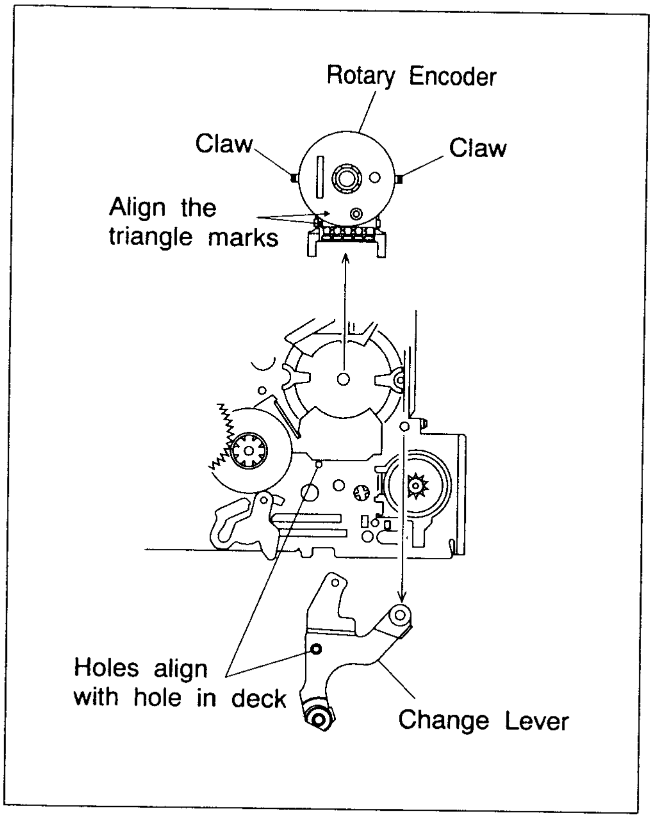

Rotary Encoder
Claw
Claw
Align the triangle marks
Holes align with hole in deck
Change Lever

Fig. 2-6-2

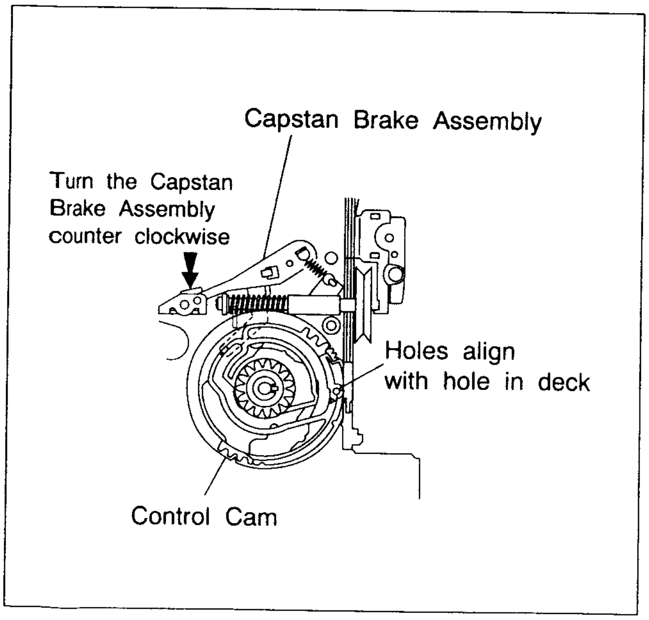

Capstan Brake Assembly
Turn the Capstan Brake Assembly counter clockwise
Holes align with hole in deck
Control Cam

Fig. 2-6-3

2.6.4 Slide Plate

(1) Lower both the main brake assemblies (supply and take-up) untill they touch the edge of the main deck assembly while reinstalling the slide plate so as to make the respective positioning holes of the main brake assemblies correspond to the holes on the main deck assembly.

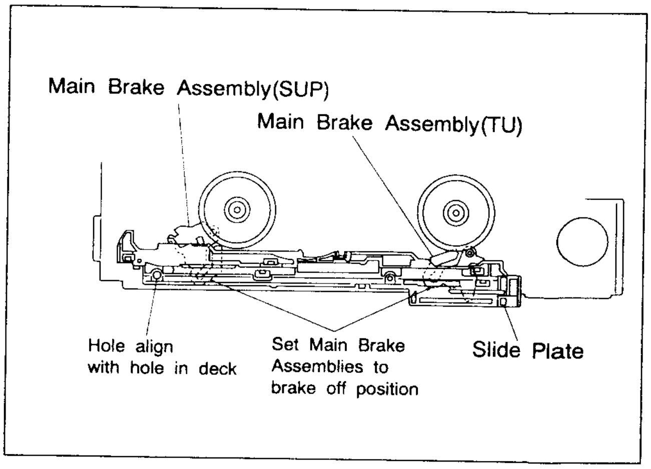

Main Brake Assembly(SUP)
Main Brake Assembly(TU)
Hole align with hole in deck
Set Main Brake Assemblies to brake off position
Slide Plate

Fig.2-6-4

2.6.5 Control Plate

(1) Reinstall the control plate so as to set the two positioning holes of it on the holes on the main deck assembly respectively and to set the positioning hole of the take-up lever on the hole of the main deck at the same time. When adjusting the hole position of the take-up lever,use a pair of tweezers to hold and move it since it is pulled by a tension spring.

(2) After reinstalling the control plate,fix it with the slit washer,control bracket-1 and -2.

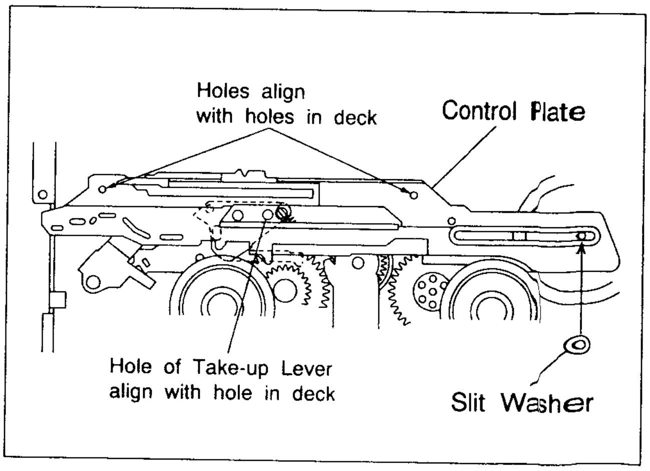

Holes align with holes in deck
Control Plate
Hole of Take-up Lever align with hole in deck
Slit Washer

Fig. 2-6-5

2.7 TAPE INTERCHANGEABILITY ADJUSTMENT

NOTE :
- *This adjustment is extremely important. However, it is normally not required during routine service. Perform only after replacing major components(A/C head,upper/lower drum assembly,pole base assembly,etc).*
- *Before using costly alignment tape,use a spare tape and confirm correct operation of the tape transport.*

2.7.1 Tape pattern

(1) Connect the oscilloscope to TP106(PB FM) on the PRE/REC board.Use TP111(D.FF) on the PRE/REC board as a trigger.

(2) Playback the SP stairstep portion of the alignment tape [MHPE].Confirm that the FM waveform appears as indicated in Fig.2-7-1.

(3) Set the manual tracking position by pressing the **/I/I** button on the remote controller or TV PROG "-" and "+" buttons simultaneously.

(4) Operate the tracking adjustment (press the TV PROG buttons during playback) and set for maximum playback FM waveform.

(5) By operating the TV PROG button,vary the FM waveform from maximum to minimum and vice versa to confirm that the waveform varies nearly in a flat shape as shown in Fig.2-7-1.

(6) When the FM waveform does not remain flat during this process,first slightly loosen the set screw located at the bottom of the guide rollers.Using the guide roller adjustment tool (Roller driver) ,adjust the supply and take-up guide rollers (refer to Fig.2-7-2) to obtain the correct waveform as indicated in Fig.2-7-3.

(7) By pressing the TV PROG buttons several times,vary the FM waveform output from maximum to minimum (and vice versa) gradually,and confirm that the variation proceeds in flat shape, as shown in Fig.2-7-3.

(8) Next playback the LP stairstep portion of the alignment tape [MHPE-L] and adjust the tracking control from maximum to minimum the FM waveform,confirm that FM waveform variation is always flat.

(9) Record the signal and play it back in both of the SP and LP mode,confirm that the FM waveform is flat in both mode.

(10) After adjustments,tighten the set screw of the guide rollers.

(11) Confirm that the tape wrinking does not occur at the roller upper or lower limits as indicated in Fig.2-7-4.

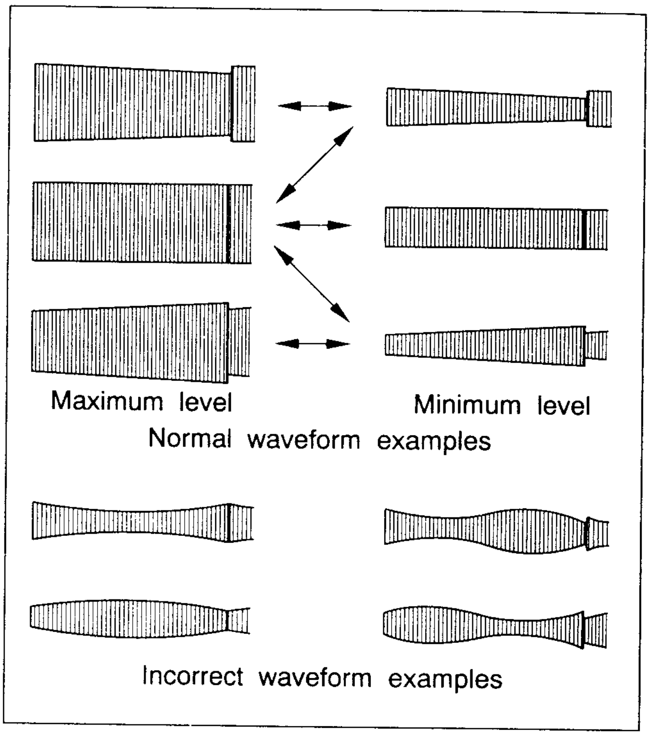


Fig. 2-7-1

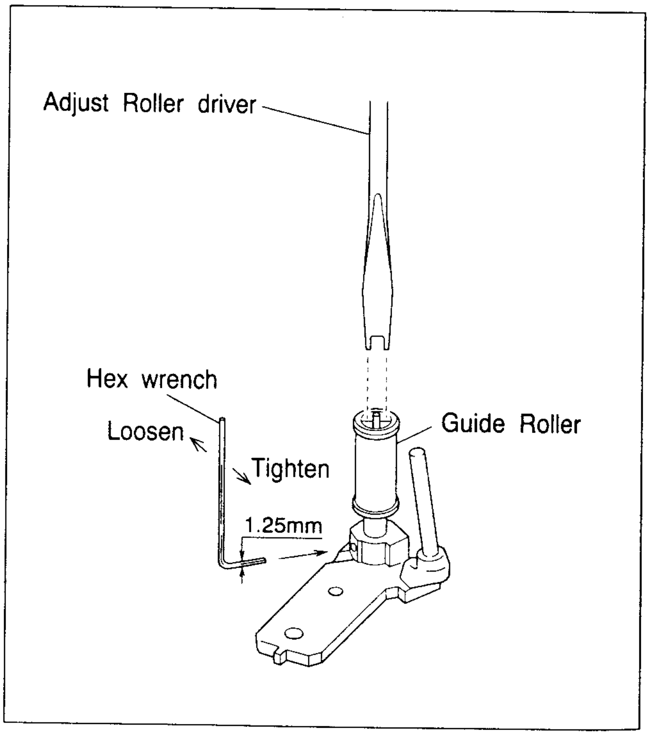


Fig. 2-7-2

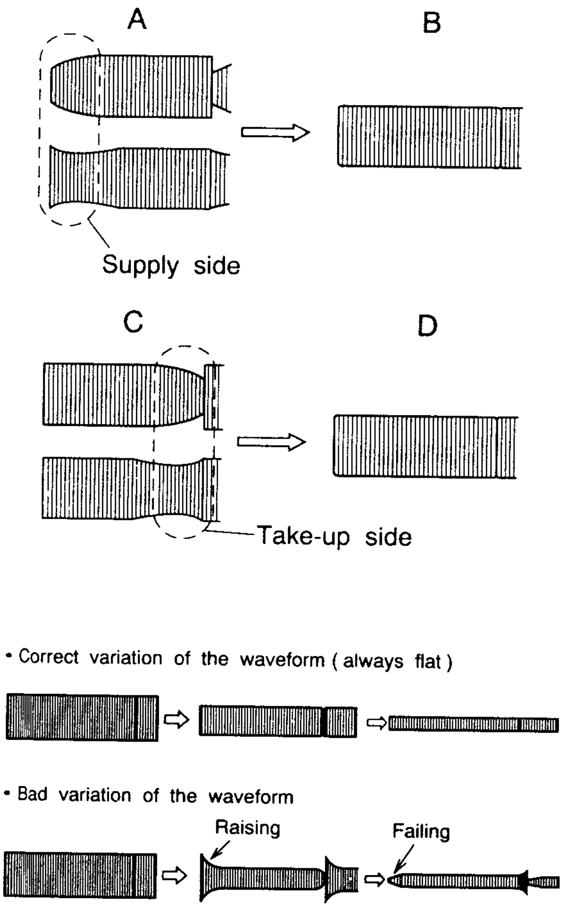
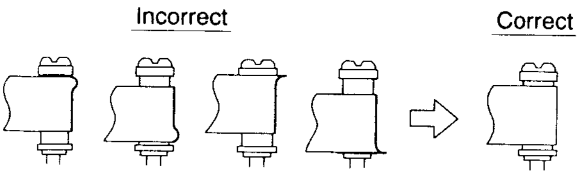
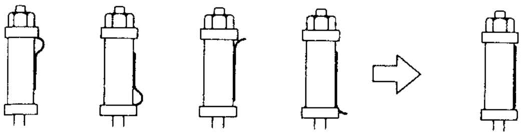

A
B
Supply side
C
D
Take-up side
• Correct variation of the waveform (always flat)
• Bad variation of the waveform
Raising
Failing

Fig. 2-7-3


Incorrect
Correct

(a) Guide Roller



(b) Guide Pole

Fig. 2-7-4

2.7.2 A/C head height & azimuth

NOTE :
- *Temporarily set A/C head height as indicated in Fig. 2-5-4.*
- *Use spare tape to check the transport and confirm the tape is not scratched or damaged.*

1. Tilt

(1) Use spare tape and set for playback.
(2) Turn screw (3) clockwise to where the tape curls just slightly at the TU guide pole bottom flange as shown in Fig.2-7-5.
(3) Then slowly turn screw (3) counterclockwise to where the curling ceases.

2. Height

(1) Connect CH-1 of a dual trace oscilloscope to Audio Out.
(2) Connect CH-2 to TP1101(CTL PULSE) of the Main board assembly and use the ALT mode.
(3) Playback the SP stairstep portion of the alignment tape [MHPE].
(4) Adjust screws (1),(2) and (3) for maximum audio output and control pulse level.

3. Azimuth

(1) Connect the oscilloscope to Audio Out.
(2) Playback the SP stairstep portion of the alignment tape [MHPE].
(3) Adjust screw (2) so that the audio output is both maximum and with minimum fluctuation.

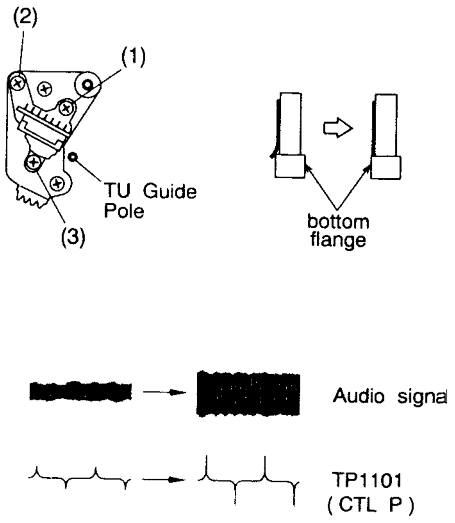

(2)
(1)
TU Guide Pole
(3)
bottom flange
Audio signal
TP1101 (CTL P)

Fig. 2-7-5

2.7.3 A/C head phase(X-value)

(1) Connect the oscilloscope to TP106(PB FM) on the MAIN board.Use TP111(D.FF) on the MAIN board as a trigger.

(2) Playback the SP stairstep portion of the alignment tape [MHPE].

(3) Set the neutral manual tracking position by pressing the **////** button on the remote controller or TV PROG "-" and "+" buttons simultaneously.

(4) If adjustment is required,slightly loosen screws (4) and (5). Set A/C head positioning tool on the A/C head adjusting boss as indicated in Fig.2-7-6.

(5) Turn the tool first to position the A/C head fully toward the capstan. Then gradually return it toward the drum and stop at the position of maximum FM waveform output level as shown in Fig.2-7-7.

(6) Tighten screw (5). Remove the tool and tighten screw (4).

(7) Eject the SP alighnment tape [MHPE] and then re-insert the LP alignment tape [MHPE-L].

(8) Playback the LP stairstep portion of the alignment tape [MHPE-L].

(9) Set the neutral manual tracking position by pressing the **////** button on the remote controller or TV PROG "-" and "+" buttons simultaneously.

(10) Confirm maximum playback FM waveform output level as shown in Fig.2-7-7.

(11) If not maximum,slightly loosen the screws (4) and (5). Use the tool and adjust the head position for the nearest maximum point. Then tighten screws (4) and (5).

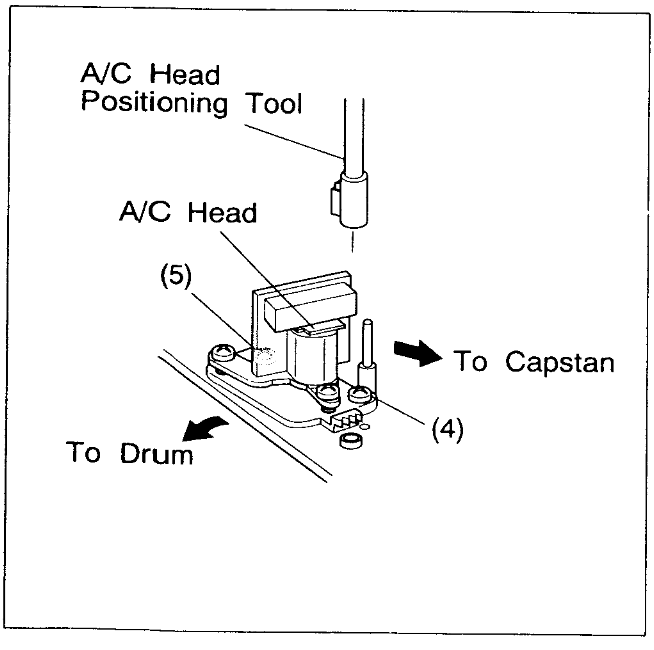


Fig. 2-7-6

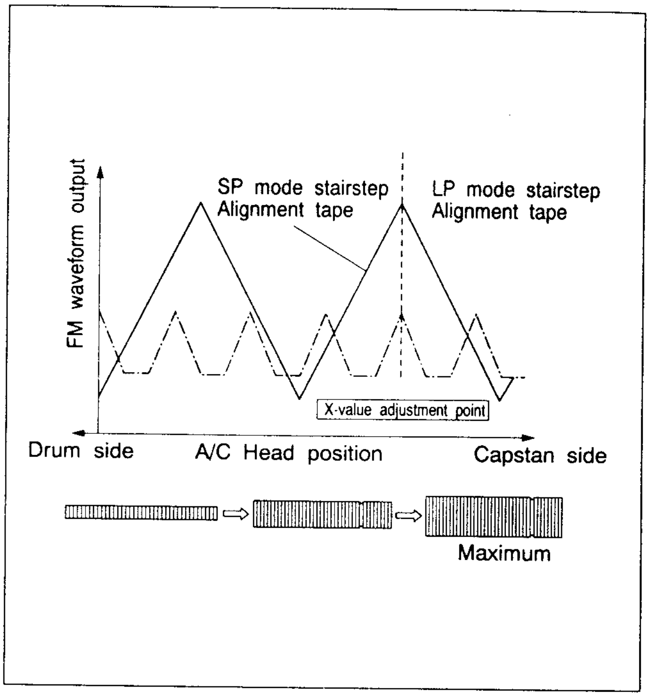


Fig. 2-7-7

2.7.4 LP mode auto tracking

NOTE : *Set VCR to the mode A by remote controller.*

(1) Connect the oscilloscope to TP106(PB FM) on the MAIN Board. Use TP111(D.FF) on the MAIN board as a trigger.

(2) Playback the LP stairstep portion of the alignment tape [MHPE-L].

(3) Confirm the FM waveform of the oscilloscope screen until auto tracking action is over.

(4) Twice press button "D" of the presetting unit [PTU94008].

(5) If the alignment tape ejects automatically,repeat the A/C head phase adjustment (X-value).

2.7.5 Tension pole position

(1) Set for playback mode using MECHANISM SERVICE MODE(See SECTION 1 DISASSEMBLY).
(2) Slightly loosen the screw (A) .
(3) Turn the adjust pin so that the tension arm assembly does not touch ϕ2.5 pole on the outside.
(4) Tighten the screw (A).
(5) After adjustment,use the back tension cassette gauge and set for the playback mode.
(6) Confirm reading of 29 to 46 g•cm.

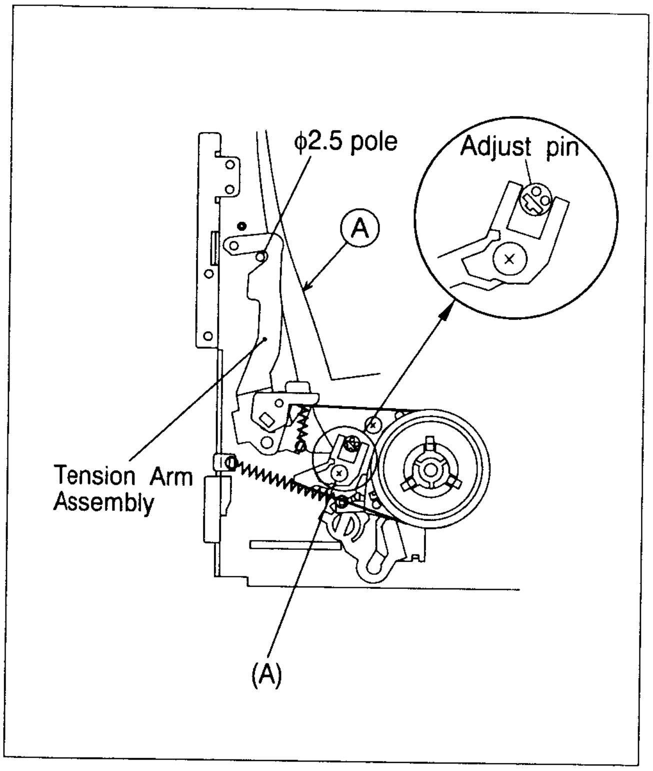


Fig. 2-7-8

2.7.6 Take-up torque

(1) Use the back tension cassette gauge and set for the playback mode.
(2) Confirm reading of 60 to 100 g•cm.

SECTION 3
ELECTRICAL ADJUSTMENT

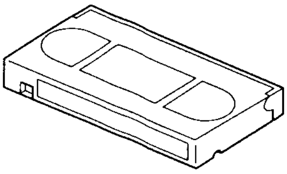
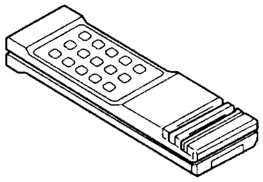
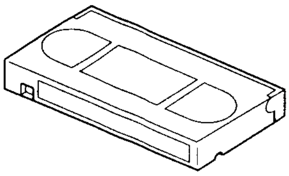
3.1 PRECAUTION

Electrical adjustment are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also do not attempt these adjustments unless the proper equipments is available.

3.1.1 Required test equipment

① Colour television or monitor
② Oscilloscope: wide-band,dual-trace,triggered delayed sweep
③ Frequency counter
④ Digital voltmeter
⑤ Signal generator: RF/IF sweep/maker
⑥ Signal generator: PAL colour bar, stairstep
⑦ Recording tape
⑧ Numeric remote controller(provided)

3.1.2 Required adjustment tools

Alignment tape (SP,stairstep) MHPE	Presetting unit PTU940008
	
Alignment tape (LP,stairstep) MHPE-L	
	

3.1.3 Colour bar signal,colour bar pattern

- Colour bar signal

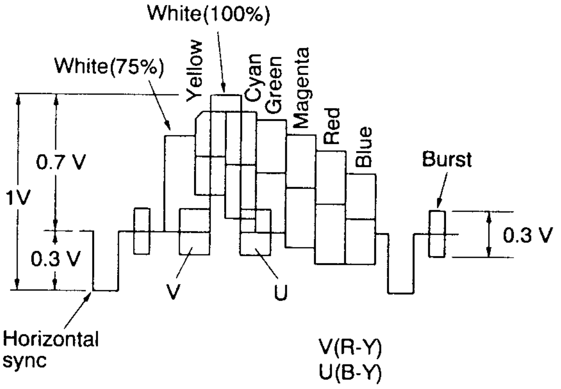

White(100%)
White(75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst
0.7 V
1V
0.3 V
0.3 V
V
U
Horizontal sync
V(R-Y)
U(B-Y)

Fig.3-1-1 Colour bar signal waveform

- Colour bar pattern

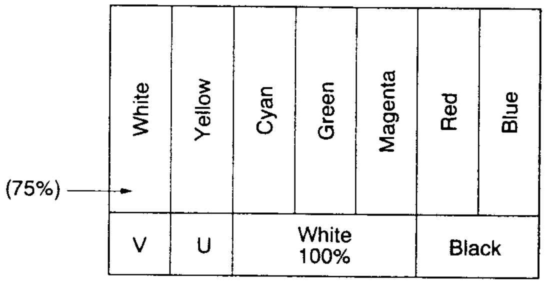

White
Yellow
Cyan
Green
Magenta
Red
Blue
(75%)
V
U
White 100%
Black

Fig.3-1-2 Colour bar pattern

3.2 SERVO CIRCUIT

Notes:
- *Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.*
- *Set VCR to the mode A by remote controller.*
- *Use only buttons "O", depressing other buttons during adjustment may cause adjustment errors.*

3.2.1 PB switching point

Signal	• Alignment tape [MHPE],Stairstep
Mode	• PB
Equipment	• Oscilloscope
Measurement point	• J1411- pin 19 (VIDEO OUT) [TERMINAL BOARD]
Trigger slope (-)	• TP111(DRUM FF), [PRE/REC BOARD]
Adjustment tool	• Presetting unit [PTU94008]
Specification	• 6.5 ± 0.5H

(1) Connect an oscilloscope to J1411- pin 19 (VIDEO OUT) and external trigger from TP111 (negative slope).
(2) Playback the stairstep signal of the alignment tape.
(3) Press the "O" button of the presetting unit.
(4) The adjustment is performed automatically.
Once the adjustment is performed, the VCR will go into the STOP mode.

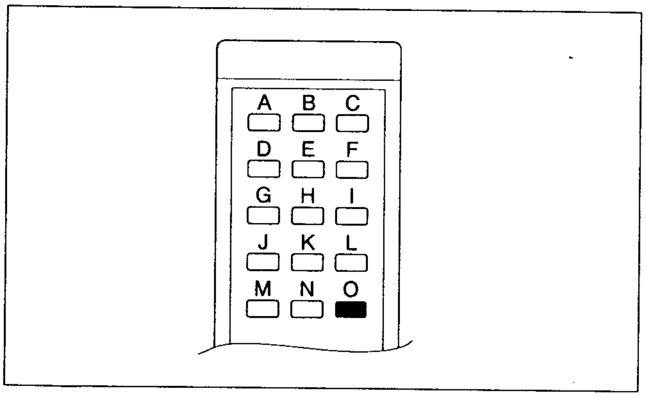


Fig.3-2-1 Presetting unit

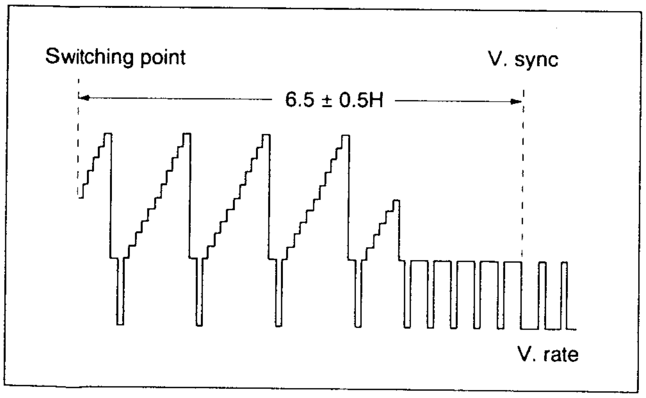


Fig.3-2-2 PB switching point

3.2.2 Slow tracking preset

Signal	• Tuner or colour bar
Mode	• SP/LP, REC → PB(SLOW)
Equipment	• TV-Monitor
Adjustment tool	• Presetting unit [PTU94008]
Specification	• Minimum noise

Note : *Set VCR to the mode A by remote controller. Use only buttons "B" and "C", depressing other buttons during adjustment may cause adjustment errors.*

(1) Record a colour bar signal in the SP mode.
(2) Playback recorded signal on the FWD slow mode.
(3) Observe the display on the TV monitor and adjust for optimum noise condition (best tracking) by depressing "B " or "C " buttons of the presetting unit.
(4) Depress the STOP button.
(5) Confirm that the bar noise is not visible on the TV monitor in the slow mode.
(6) Repeat steps (2) to (5) in the REV slow mode.
(7) Repeat steps (1) to (6) in the LP mode.

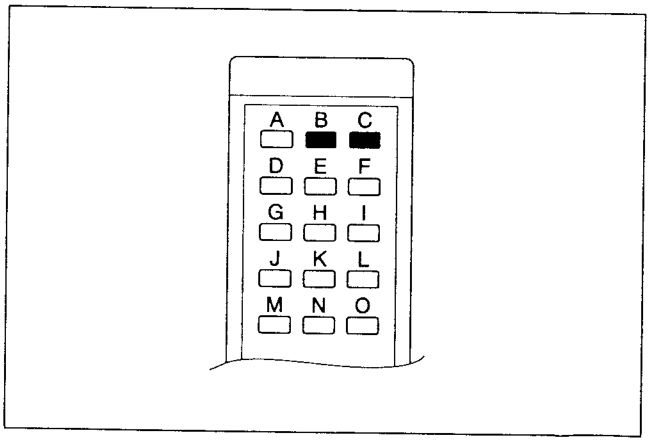


Fig.3-2-3 Presetting unit

3.2.3 Dynamic drum preset

Signal	• Alignment tape [MHPE-L], Stairstep
Mode	• Automatic tracking OFF
Equipment	• Oscilloscope
Measurement point	• TP106 (PB FM), [PRE/REC BOARD]
Trigger slope (–)	• TP111 (DRUM FF), [PRE/REC BOARD]
Adjustment tool	• Presetting unit [PTU94008]
Specification	• FM waveform flat

Note : *Set VCR to the mode A by remote controller.*

(1) Connect an oscilloscope to TP106 and external trigger from TP111 (positive slope).
(2) Playback the LP stairstep portion of the alignment tape at LP 2x mode.
(3) Set the automatic tracking control to the OFF by simultaneously pressing the **////** button on the remote controller.
(4) Adjust for maximum level of playback FM waveform by depressing TV PROG. "+" or "-" buttons.
(5) Adjust by pressing "M+D" or "M+E" buttons of presetting unit for FM waveform is flat as shown in Fig. 3-2-5.
(6) Adjust for half level of playback FM waveform from maximum level by depressing TV PROG. "+" or "-" buttons.
(7) Readjust by pressing "M+D" or "M+E" buttons of presetting unit for FM waveform is flat as shown in Fig. 3-2-5.
(8) Record the colour bar signal in the LP mode and play it back in FWD slow mode.
(9) Repeat steps (4) and (5).

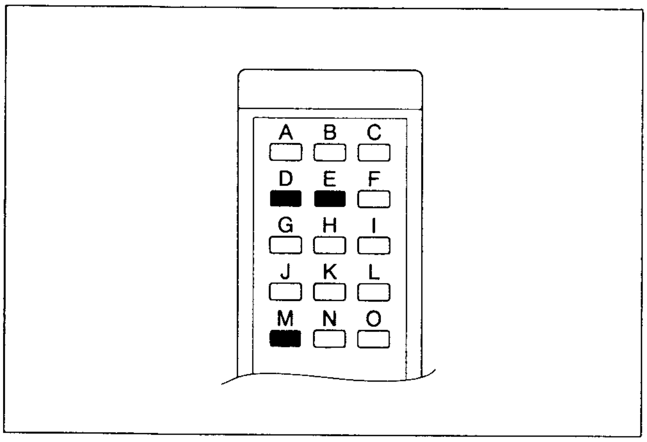


Fig. 3-2-4 Presetting unit

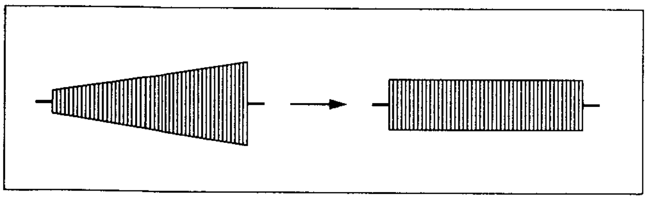


Fig. 3-2-5 PB FM

3.3 VIDEO CIRCUIT

Notes: • *Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.*
• *Set VCR to the mode A by remote controller.*

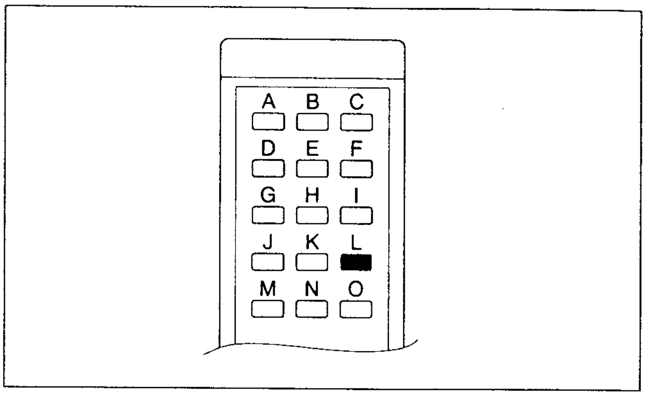


Fig.3-3-1 Presetting unit

3.3.1 Auto picture

Signal	• Monoscope
Mode	• REC then PB • SP/LP
Adjustment tool	• Presetting unit[PTU94008]
Specification	• STOP mode

(1) Record a monoscope signal in the SP mode.
(2) Playback the recorded signal.
(3) Press the "L" button of the presetting unit during playback.
(4) Confirm that VCR will go into the STOP mode.
(5) Repeat steps (2) to (4) in the LP mode.

3.4 SYSCON CIRCUIT

Notes: • *Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.*
• *When perform this adjustment,remove the MECHANISM assembly.*

3.4.1 Timer clock

Signal	• No signal
Mode	• EE
Equipment	• Frequency counter
Measurement point	• TP702 round(SYS.CLK)
Adjustment part	• C701 (TIMER CLOCK)
Specification	• 1024.008 ± 0.001 Hz [976.5549 ± 0.0010 usec]

(1) Connect the frequency counter to TP702 round and GND.
(2) Connect the short wire between TP701 round and Vcc(5V).
(3) Short the leads of capacitor C704 once in order to reset IC701.
(4) Disconnect the short wire then connect it again quickly.
(5) Adjust C701 for 1024.008 ± 0.001 Hz.
(976.5549 ± 0.0010 usec)

3.5 TUNER CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the IF UNIT.*

3.5.1 RF AGC

Signal	• TV broadcasting
Mode	• Tuner
Equipment	• TV monitor
Measurement point	• IF UNIT
Adjustment part	• IF VR
Specification	• Minimum noise

Note: *Adjust IF VR (RF AGC) to correct for excess noise in the picture or when streaks cross interference occurs due to strong electrical fields.*

(1) Adjust IF VR to minimize noise or streaks on the TV screen.
(2) Adjust for noisy picture with strong signal. Then adjust until noise just disappears. Select other channels to confirm proper pick-up of channels.

3.6 DEMODULATOR CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the DEMODULATOR BOARD.*

3.6.1 Stereo separation

Signal	• Sweep generator output (90 dBμ, 1 kHz)
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• IC401-pin48 [MAIN board]
Adjustment part	• VR1501 (SEPARATION)
Specification	• Minimum

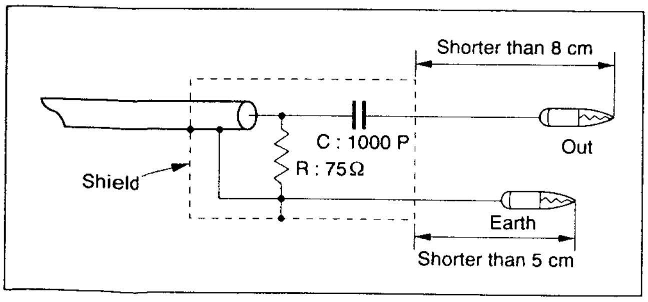


Fig. 3-6-1 Sweeper probe

(1) Use a sweeper probe as shown in Fig. 3-6-1.
(2) Supply 1 kHz R-only modulated IF signal to IF terminal of U/V tuner (front end).
(3) Connect an oscilloscope to IC401-pin48.
(4) Adjust VR1501 for minimum output level.

3.7 AUDIO CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the MAIN BOARD.*

3.7.1 REC level control

Signal	• AUX • 1KHz,-8dBs
Mode	• EE
Equipment	• Audio oscillator • AC millivoltmeter
Measurement point	• Audio output terminal(L-ch)
Adjustment part	• VR401(EE LEVEL)
Specification	• -6dBs±2dBs

(1) Connect an audio oscillator to AUDIO INPUT terminal(L-ch).
(2) Set the Hi-Fi REC LEVEL CONTROL VR to centre position.
(3) Adjust VR401 so that the L-ch audio output level becomes -6dBs±2dBs.

SECTION 4
CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions
The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufactures recommended parts.

1. Units of components on the schematic diagram

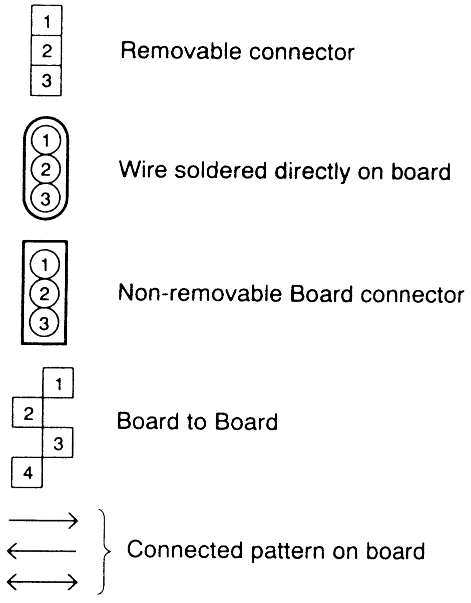
Unless otherwise specified.

1) All resistance values are in ohm. 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K: KΩ (1000Ω), M: MΩ (1000KΩ)
2) All capacitance values are in μF, (P: PF).
3) All inductance values are in μH, (m: mH).
4) All diodes are 1SS133, MA165 or IN4148M (refer to parts list).

2. Indications of control voltage

AUX : Active only at high.
$\overline{\text{AUX}}$ or AUX(L) : Active at low.

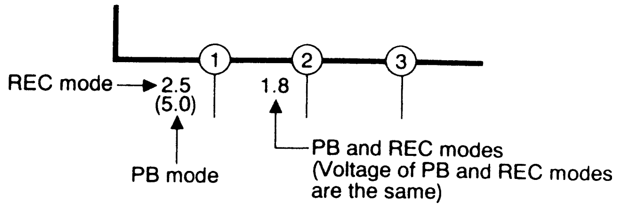
3. Interpreting Connector indications


1
2
3
Removable connector
1
2
3
Wire soldered directly on board
1
2
3
Non-removable Board connector
1
2
3
4
Board to Board
Connected pattern on board

4. Voltage measurement

1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode.
   PB : Alignment tape, colour bar SP mode, normal VHS mode.
   — : Unmeasurable or unnecessary to measure.
2) Audio circuis
   REC : 1KHz, –8 dBs sine wave signal in SP mode, Normal VHS mode.
   PB : REC then playback it.
3) Movie Camera circuits
   Measured using a correctly illuminated grey scale or colour bar test charts in the E-E mode.

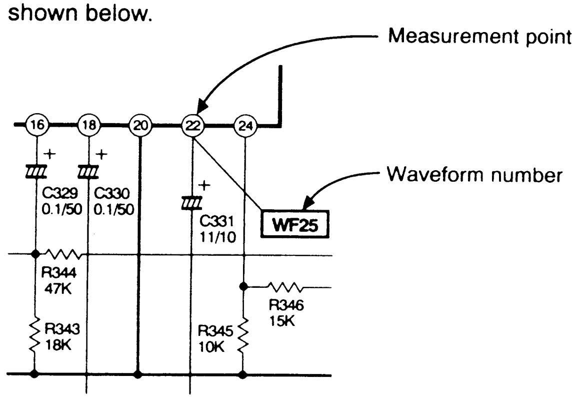
4) Indication on schematic diagram
   Voltage Indications for REC and PB mode on the schematic diagram are as shown below.


REC mode
2.5
(5.0)
1.8
1
2
3
PB mode
PB and REC modes
(Voltage of PB and REC modes are the same)

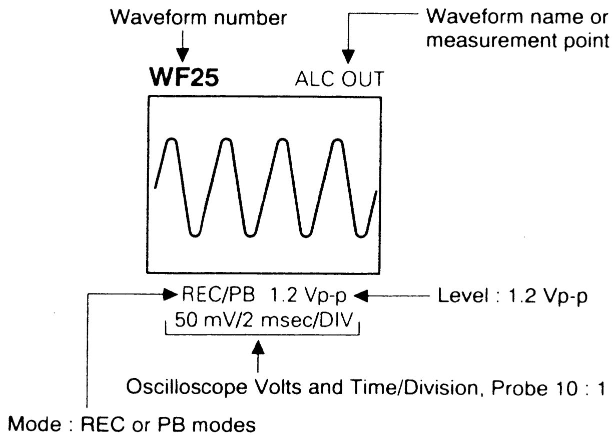
Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode.
   PB : Alignment tape, colour bar SP mode, normal VHS mode.
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, normal VHS mode.
   PB : REC then playback it.
3) Movie Camera circuits
   Measured using a correctly illuminated grey scale or colour bar test chatrs in the E-E mode.
4) Indication on schematic diagram
   Waveform indications on the schematic diagram are as shown below.

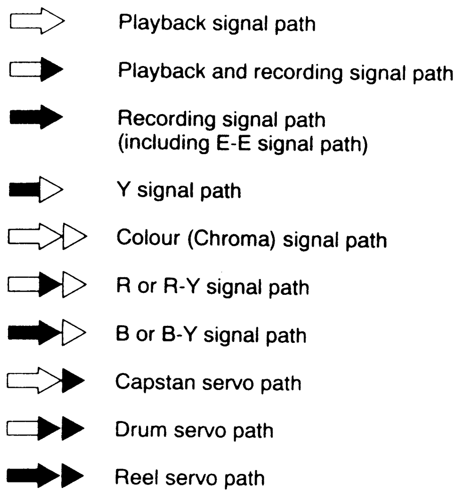

Measurement point
16
18
20
22
24
Waveform number
C329
0.1/50
C330
0.1/50
C331
11/10
WF25
R344
47K
R343
18K
R345
10K
R346
15K

5) Waveform indications


Waveform number
Waveform name or measurement point
WF25
ALC OUT
REC/PB 1.2 Vp-p
Level : 1.2 Vp-p
50 mV/2 msec/DIV
Oscilloscope Volts and Time/Division, Probe 10 : 1
Mode : REC or PB modes

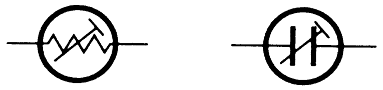
6. Signal path Symbols

The arrows indicate the signal path as follows.


Playback signal path
Playback and recording signal path
Recording signal path
(including E-E signal path)
Y signal path
Colour (Chroma) signal path
R or R-Y signal path
B or B-Y signal path
Capstan servo path
Drum servo path
Reel servo path

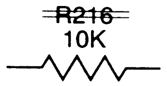
7. Indication of the parts for adjustments

The parts for the adjustments are surrounded with the circle as shown below.



8. Indication of the parts not mounted on the circuit board

"OPEN" is indicated by the parts not mounted on the circuit board.
Or the symbol number is struck off by two lines as below.



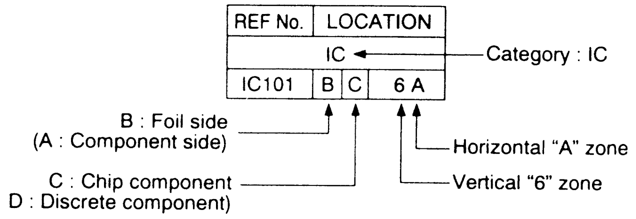
CIRCUIT BOARD NOTES

1. Foil and Component sides

1) Foil side (B side) :
   Parts on the foil side seen from foil face (pattern face) are indicated.
2) Component side (A side) :
   Parts on the component side seen from component face (parts face) indicated.

2. Parts location guides

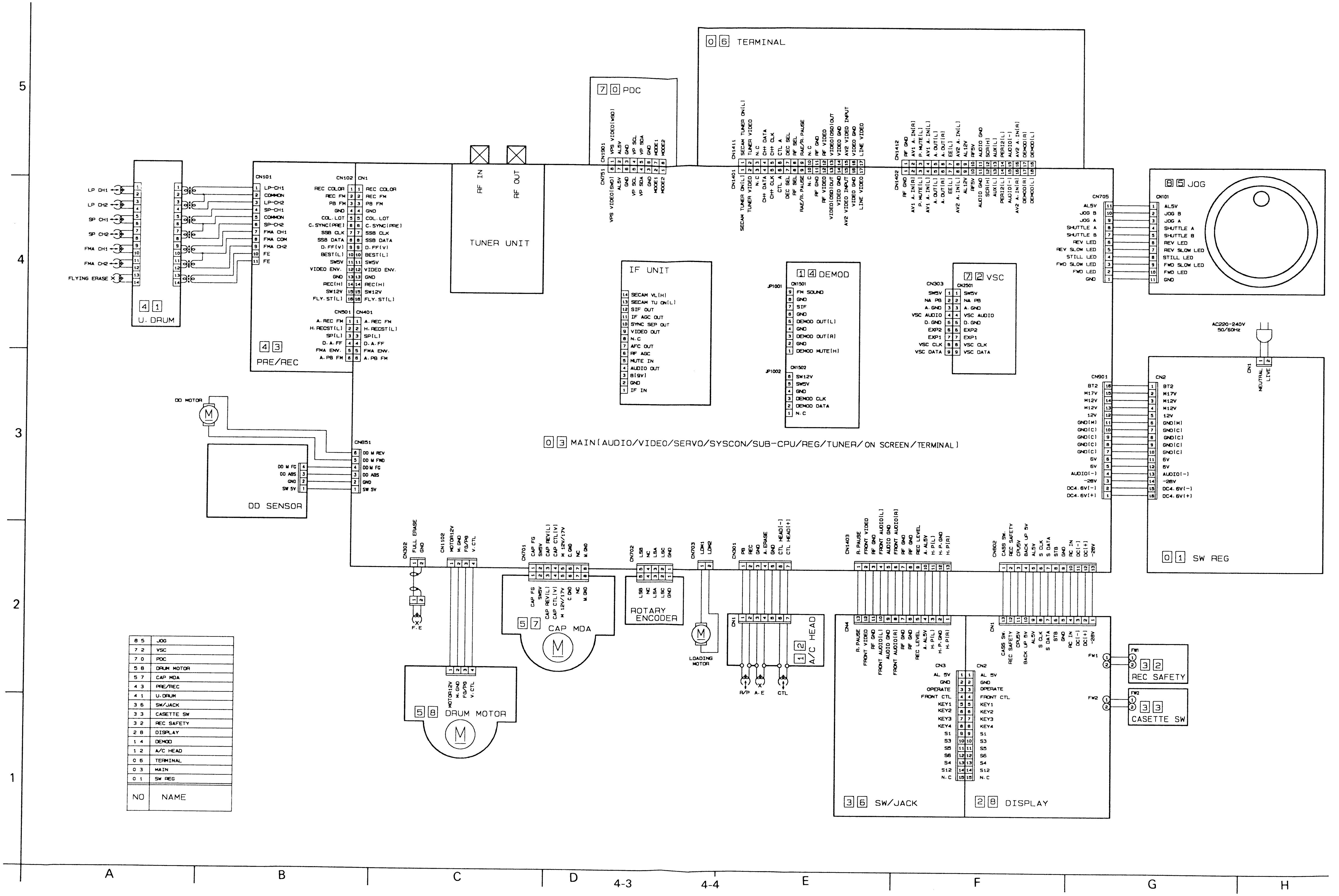
Parts location are indicated by guide scale on the circuit board.


REF No.
LOCATION
IC
Category : IC
IC101
B
C
6 A
B : Foil side
(A : Component side)
C : Chip component
D : Discrete component)
Horizontal "A" zone
Vertical "6" zone

Notes:

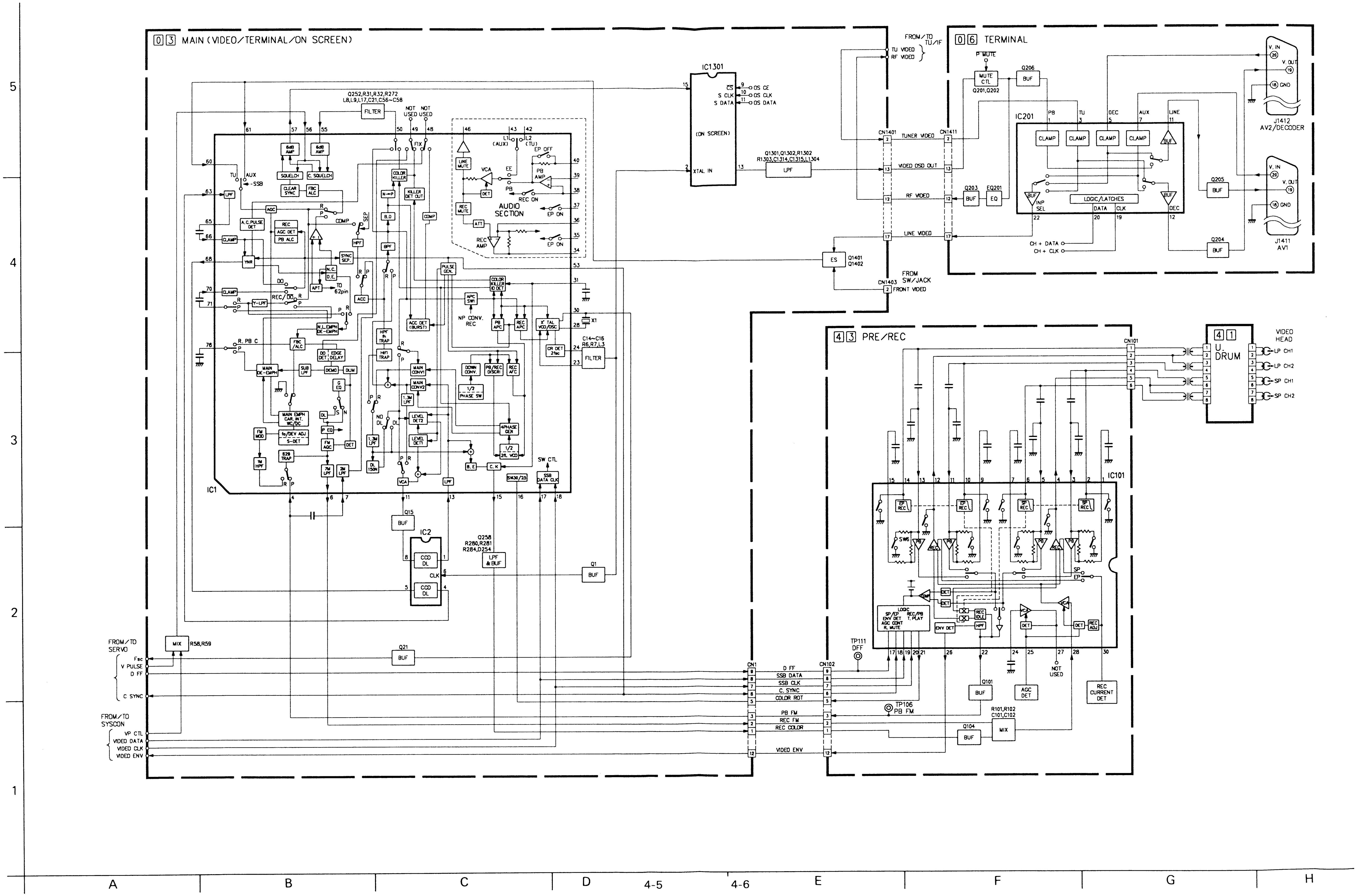
1) **For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).**
2) **For repairing SMC (Surface Mounted Components), please refer to the VIDEO SERVICE GUIDE No. VTS81001.**

4.1 BOARD INTERCONNECTIONS

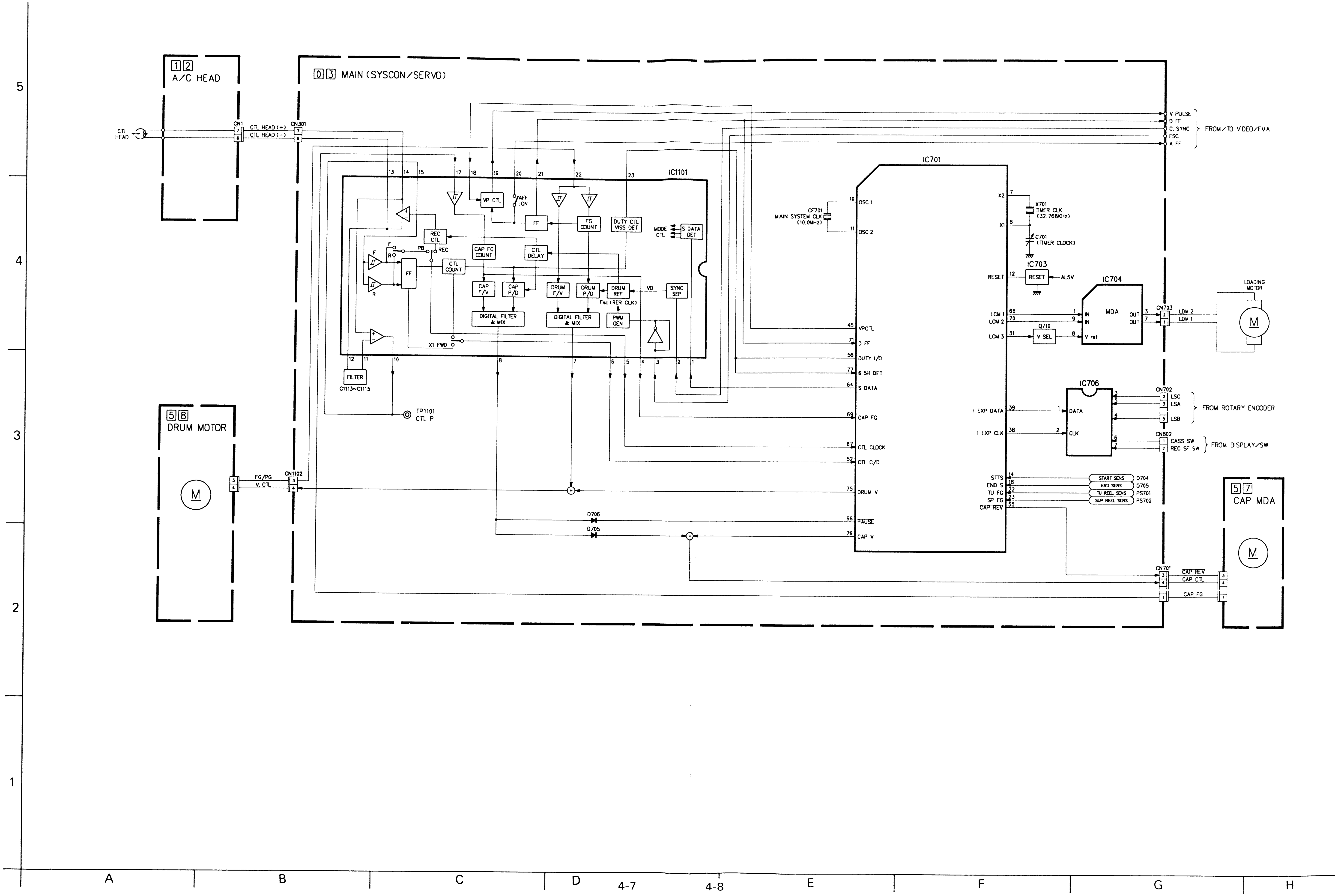

0 6 TERMINAL
7 0 PDC
8 5 JOG
0 3 MAIN (AUDIO/VIDEO/SERVO/SYSCON/SUB-CPU/REG/TUNER/ON SCREEN/TERMINAL)
4 1 U.DRUM
4 3 PRE/REC
TUNER UNIT
RF IN
RF OUT
IF UNIT
1 4 DEMOD
7 2 VSC
0 1 SW REG
AC220-240V 50/60Hz
DD MOTOR
DD SENSOR
5 7 CAP MDA
5 8 DRUM MOTOR
ROTARY ENCODER
LOADING MOTOR
1 2 A/C HEAD
3 6 SW/JACK
2 8 DISPLAY
3 2 REC SAFETY
3 3 CASETTE SW
F.E
R/P
A.E
CTL
A
B
C
D
E
F
G
H
1
2
3
4
5

NO	NAME
8 5	JOG
7 2	VSC
7 0	PDC
5 8	DRUM MOTOR
5 7	CAP MDA
4 3	PRE/REC
4 1	U.DRUM
3 6	SW/JACK
3 3	CASETTE SW
3 2	REC SAFETY
2 8	DISPLAY
1 4	DEMOD
1 2	A/C HEAD
0 6	TERMINAL
0 3	MAIN
0 1	SW REG

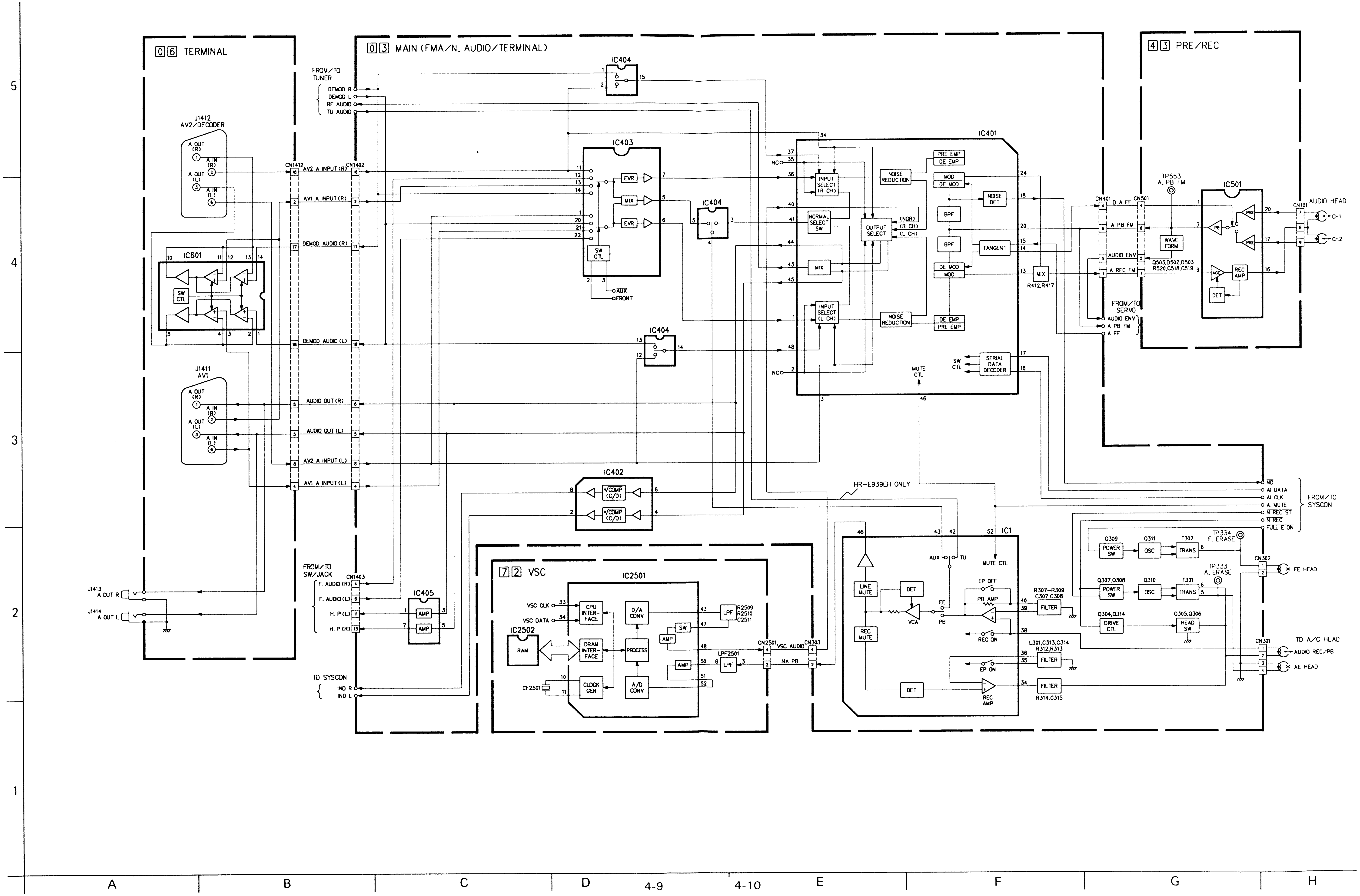
4.2 VIDEO BLOCK DIAGRAM


03 MAIN (VIDEO/TERMINAL/ON SCREEN)
IC1
IC2
CCD DL
IC1301
(ON SCREEN)
XTAL IN
CS
S CLK
S DATA
OS CE
OS CLK
OS DATA
Q1301,Q1302,R1302
R1303,C1314,C1315,L1304
LPF
Q252,R31,R32,R272
L8,L9,L17,C21,C56~C58
FILTER
NOT USED
NOT USED
AUDIO SECTION
LINE MUTE
VCA
EE
PB
PB AMP
REC ON
EP OFF
EP ON
REC MUTE
ATT
REC AMP
DET
L1 (AUX)
L2 (TU)
TU
AUX
SSB
6dB AMP
SQUELCH
C. SQUELCH
CLEAR SYNC
FBC ALC
AGC
A.C.PULSE DET
REC AGC DET
PB ALC
COMP
SEP
HPF
SYNC SEP.
N.C.
D.E.
APT
TO 62pin
YNR
CLAMP
Y-LPF
REC/DO
ACC
N.L.EMPH DE-EMPH
FBC /ALC
R. PB C
MAIN DE-EMPH
SUB LPF
DO DET
EDGE DELAY
DEMO
DLIM
G EQ
DL
P EQ
FM MOD
fo/DEV ADJ S-DET
FM AGC
MAIN EMPH CAR. INT. WC/DC
1M HPF
829 TRAP
7M LPF
3M LPF
COLOR KILLER
KILLER DET OUT
N→P
B.D
BPF
HPF fh TRAP
HIFI TRAP
MAIN CONV1
MAIN CONV2
1.3M LPF
LEVEL DET2
LEVEL DET1
DL 150n
VCA
LPF
PULSE GEN.
COLOR KILLER ID DET
APC SW1
NP CONV. REC
ACC DET (BURST)
PB APC
REC APC
X'TAL VCO/OSC
CR DET 2fsc
DOWN CONV.
PB/REC DISCRI
REC AFC
1/2 PHASE SW
4PHASE GEN
1/2 2fL VCO
B.E
C. K
SW30/25
SSB DATA CLK
SW CTL
X1
C14~C16
R6,R7,L3
FILTER
Q15
BUF
Q258
R280,R281
R284,D254
LPF & BUF
Q1
BUF
CLK
Q21
BUF
MIX
R58,R59
FROM/TO SERVO
Fsc
V PULSE
D FF
C SYNC
FROM/TO SYSCON
VP CTL
VIDEO DATA
VIDEO CLK
VIDEO ENV
FROM/TO TU/IF
TU VIDEO
RF VIDEO
CN1401
CN1411
TUNER VIDEO
VIDEO OSD OUT
RF VIDEO
LINE VIDEO
ES
Q1401
Q1402
FROM SW/JACK
CN1403
FRONT VIDEO
06 TERMINAL
P MUTE
MUTE CTL
Q201,Q202
Q206
BUF
IC201
PB
TU
DEC
AUX
LINE
CLAMP
BUF
Q203
EQ201
EQ
INP SEL
LOGIC/LATCHES
DATA
CLK
CH + DATA
CH + CLK
Q205
Q204
V. IN
V. OUT
GND
J1412
AV2/DECODER
J1411
AV1
43 PRE/REC
CN101
IC101
EP REC
SP REC
SW6
PB
REC
SP
EP
COMP
DET
REC IDLE
HPF
ENV DET
LOGIC SP/EP REC/PB ENV DET T. PLAY AGC CONT R. MUTE
REC ADJ
NOT USED
Q101
BUF
AGC DET
REC CURRENT DET
Q104
BUF
R101,R102
C101,C102
MIX
TP111
DFF
TP106
PB FM
CN1
CN102
D FF
SSB DATA
SSB CLK
C. SYNC
COLOR ROT
PB FM
REC FM
REC COLOR
VIDEO ENV
41
U. DRUM
VIDEO HEAD
LP CH1
LP CH2
SP CH1
SP CH2
A
B
C
D
E
F
G
H
1
2
3
4
5

4.3 SYSTEM CONTROL BLOCK DIAGRAM

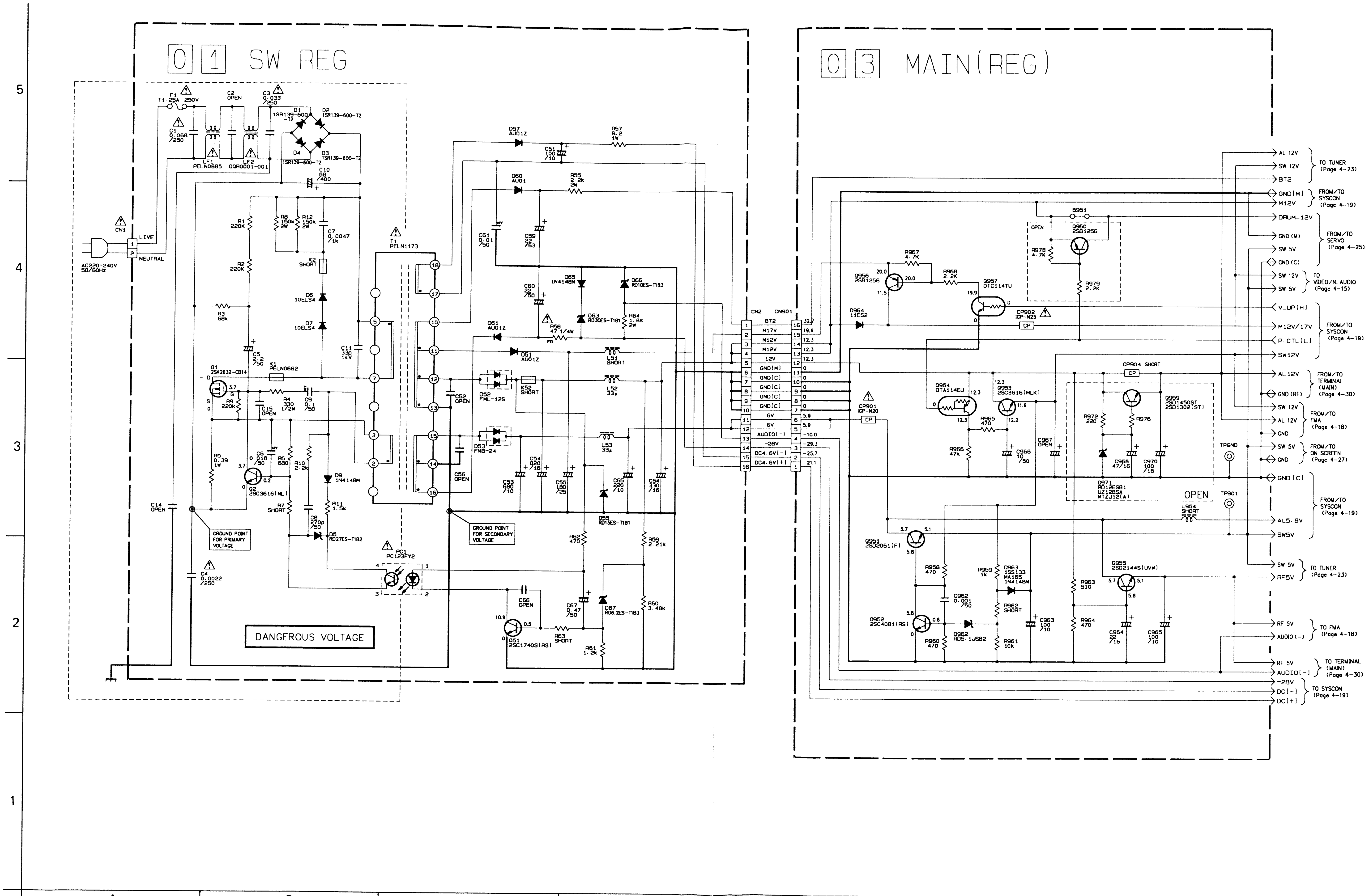

12 A/C HEAD
CTL HEAD
CN1
CTL HEAD (+)
CTL HEAD (−)
CN301
03 MAIN (SYSCON/SERVO)
IC1101
VP CTL
AFF ON
FF
FG COUNT
DUTY CTL VISS DET
MODE CTL
S DATA DET
REC CTL
CAP FG COUNT
CTL DELAY
PB
REC
CTL COUNT
CAP F/V
CAP P/D
DRUM F/V
DRUM P/D
DRUM REF
VD
SYNC SEP
Fsc (REF CLK)
DIGITAL FILTER & MIX
PWM GEN
X1 FWD
FILTER
C1113~C1115
TP1101 CTL P
58 DRUM MOTOR
FG/PG
V. CTL
CN1102
D706
D705
IC701
CF701 MAIN SYSTEM CLK (10.0MHz)
OSC 1
OSC 2
VPCTL
D FF
DUTY I/O
6.5H DET
S DATA
CAP FG
CTL CLOCK
CTL C/D
DRUM V
PAUSE
CAP V
X2
X1
X701 TIMER CLK (32.768KHz)
C701 (TIMER CLOCK)
RESET
IC703
AL5V
IC704
MDA
LCM 1
LCM 2
LCM 3
Q710
V SEL
V ref
IN
OUT
CN703
LDM 2
LDM 1
LOADING MOTOR
M
IC706
I EXP DATA
I EXP CLK
DATA
CLK
CN702
LSC
LSA
LSB
FROM ROTARY ENCODER
CN802
CASS SW
REC SF SW
FROM DISPLAY/SW
STTS
END S
TU FG
SP FG
CAP REV
START SENS Q704
END SENS Q705
TU REEL SENS PS701
SUP REEL SENS PS702
V PULSE
D FF
C. SYNC
FSC
A FF
FROM/TO VIDEO/FMA
CN701
CAP REV
CAP CTL
CAP FG
57 CAP MDA
5
4
3
2
1
A
B
C
D
E
F
G
H

4.4 AUDIO BLOCK DIAGRAM



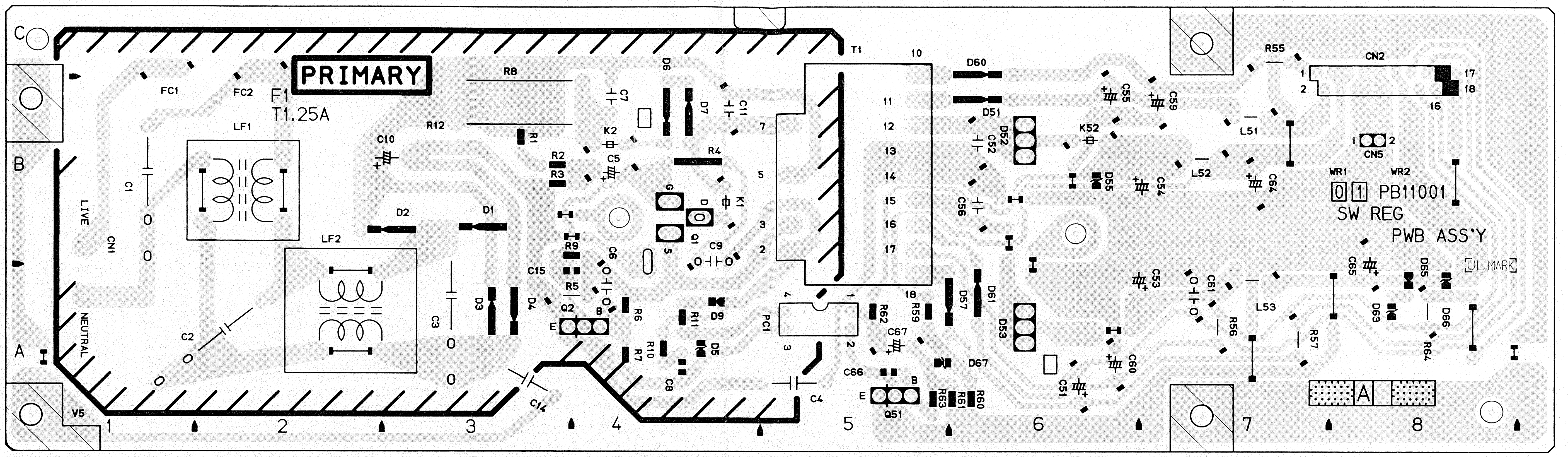
06 TERMINAL
03 MAIN (FMA/N. AUDIO/TERMINAL)
43 PRE/REC
72 VSC
J1412 AV2/DECODER
A OUT (R)
A IN (R)
A OUT (L)
A IN (L)
J1411 AV1
IC601
SW CTL
CN1412
CN1402
AV2 A INPUT (R)
AV1 A INPUT (R)
DEMOD AUDIO (R)
DEMOD AUDIO (L)
AUDIO OUT (R)
AUDIO OUT (L)
AV2 A INPUT (L)
AV1 A INPUT (L)
J1413 A OUT R
J1414 A OUT L
FROM/TO TUNER
DEMOD R
DEMOD L
RF AUDIO
TU AUDIO
IC404
IC403
EVR
MIX
AUX
FRONT
IC402
√COMP (C/D)
FROM/TO SW/JACK
CN1403
F. AUDIO (R)
F. AUDIO (L)
H. P (L)
H. P (R)
IC405
AMP
TO SYSCON
IND R
IND L
IC2501
IC2502
RAM
VSC CLK
VSC DATA
CPU INTER-FACE
DRAM INTER-FACE
D/A CONV
PROCESS
A/D CONV
CLOCK GEN
CF2501
SW
LPF
R2509 R2510 C2511
LPF2501
CN2501
VSC AUDIO
NA PB
CN303
IC401
PRE EMP
DE EMP
NOISE REDUCTION
INPUT SELECT (R CH)
INPUT SELECT (L CH)
NORMAL SELECT SW
OUTPUT SELECT
(NOR)
(R CH)
(L CH)
MOD
DE MOD
NOISE DET
BPF
TANGENT
SERIAL DATA DECODER
SW CTL
MUTE CTL
NC
MIX
R412,R417
HR-E939EH ONLY
CN401
CN501
D A FF
A PB FM
AUDIO ENV
A REC FM
TP553 A. PB FM
WAVE FORM
Q503,D502,D503 R520,C518,C519
IC501
PRE
PB
AGC
REC AMP
DET
CN101
AUDIO HEAD
CH1
CH2
FROM/TO SERVO
AUDIO ENV
A PB FM
A FF
ND
AI DATA
AI CLK
A. MUTE
N REC ST
N REC
FULL E ON
FROM/TO SYSCON
IC1
AUX
TU
MUTE CTL
LINE MUTE
DET
VCA
EE
PB
REC MUTE
EP OFF
PB AMP
REC ON
EP ON
REC AMP
FILTER
R307~R309 C307,C308
L301,C313,C314 R312,R313
R314,C315
Q309 POWER SW
Q311 OSC
T302 TRANS
TP334 F. ERASE
Q307,Q308 POWER SW
Q310 OSC
T301 TRANS
TP333 A. ERASE
Q304,Q314 DRIVE CTL
Q305,Q306 HEAD SW
CN302
FE HEAD
CN301
TO A/C HEAD
AUDIO REC/PB
AE HEAD
1
2
3
4
5
A
B
C
D
E
F
G
H

4.5 SWITCHING REGULATOR SCHEMATIC DIAGRAM



01 SW REG
03 MAIN(REG)
AC220-240V 50/60Hz
CN1
LIVE
NEUTRAL
F1 T1.25A 250V
C1 0.068 /250
C2 OPEN
C3 0.033 /250
LF1 PELN0885
LF2 QQR0001-001
D1 1SR139-600 -T2
D2 1SR139-600-T2
D3 1SR139-600-T2
D4 1SR139-600-T2
C10 68 /400
R1 220K
R2 220K
R3 68k
R8 150k 2W
R12 150k 2W
C7 0.0047 /1k
K2 SHORT
D6 10ELS4
D7 10ELS4
C11 330 1kV
T1 PELN1173
C5 2.2 /50
K1 PELN0662
Q1 2SK2632-CB14
R9 220k
R4 330 1/2W
C9 0.1 /50
C15 OPEN
R5 0.39 1W
C6 0.018 /50
R6 680
R10 2.2k
Q2 2SC3616(ML)
D9 1N4148M
R7 SHORT
R11 1.5k
C8 270p /50
D5 RD27ES-T1B2
C14 OPEN
C4 0.0022 /250
GROUND POINT FOR PRIMARY VOLTAGE
GROUND POINT FOR SECONDARY VOLTAGE
PC1 PC123FY2
DANGEROUS VOLTAGE
D57 AU01Z
C51 100 /10
R57 8.2 1W
D60 AU01
R55 2.2k 2W
C61 0.01 /50
C59 22 /63
C60 22 /50
D65 1N4148M
D66 RD10ES-T1B3
R56 47 1/4W
D63 RD30ES-T1B1
R64 1.8K 2W
D61 AU01Z
D51 AU01Z
L51 SHORT
D52 FML-12S
K52 SHORT
L52 33μ
C52 OPEN
D53 FMB-24
L53 33μ
C56 OPEN
C53 680 /10
C54 820 /16
C55 180 /25
C65 220 /10
C64 330 /16
D55 RD15ES-T1B1
R62 470
R59 2.21k
C66 OPEN
C67 0.47 /50
D67 RD6.2ES-T1B3
R60 3.48k
Q51 2SC1740S(RS)
R63 SHORT
R61 1.2k
CN2 CN901
1 BT2 16 32.7
2 M17V 15 19.9
3 M12V 14 12.3
4 M12V 13 12.3
5 12V 12 12.3
6 GND(M) 11 0
7 GND(C) 10 0
8 GND(C) 9 0
9 GND(C) 8 0
10 GND(C) 7 0
11 6V 6 5.9
12 6V 5 5.9
13 AUDIO(-) 4 -10.0
14 -28V 3 -29.3
15 DC4.6V(-) 2 -25.7
16 DC4.6V(+) 1 -21.1
Q956 2SB1256
R967 4.7K
R968 2.2K
Q957 DTC114TU
D964 11ES2
B951
OPEN
Q960 2SB1256
R978 4.7K
R979 2.2K
CP902 ICP-N25
CP901 ICP-N20
CP904 SHORT
Q954 DTA114EU
Q953 2SC3616(MLK)
R965 470
R966 47K
C966 10 /50
C967 OPEN
R972 220
R976
Q959 2SD1450ST 2SD1302(ST)
C968 47/16
C970 100 /16
D971 RD12ES81 UZ12BSA MTZJ12(A)
OPEN
L954 SHORT
TPGND
TP901
Q951 2SD2061(F)
R958 470
R959 1k
D963 1SS133 MA165 1N4148M
C962 0.001 /50
R962 SHORT
C963 100 /10
R963 510
R964 470
Q955 2SD2144S(UVW)
C964 22 /16
C965 100 /10
Q952 2SC4081(RS)
D962 RD5.1JS82
R960 470
R961 10K
AL 12V
SW 12V
BT2
TO TUNER (Page 4-23)
GND(M)
M12V
FROM/TO SYSCON (Page 4-19)
DRUM_12V
GND (M)
SW 5V
GND (C)
FROM/TO SERVO (Page 4-25)
SW 12V
SW 5V
TO VIDEO/N. AUDIO (Page 4-15)
V_UP(H)
M12V/17V
P.CTL(L)
SW12V
FROM/TO SYSCON (Page 4-19)
AL12V
GND (RF)
FROM/TO TERMINAL (MAIN) (Page 4-30)
SW 12V
AL 12V
GND
FROM/TO FMA (Page 4-18)
SW 5V
GND
FROM/TO ON SCREEN (Page 4-27)
GND(C)
AL5.8V
SW5V
FROM/TO SYSCON (Page 4-19)
SW 5V
RF5V
TO TUNER (Page 4-23)
RF 5V
AUDIO(-)
TO FMA (Page 4-18)
RF 5V
AUDIO(-)
TO TERMINAL (MAIN) (Page 4-30)
-28V
DC(-)
DC(+)
TO SYSCON (Page 4-19)
5
4
3
2
1
A
B
C
D
E
F
G
H

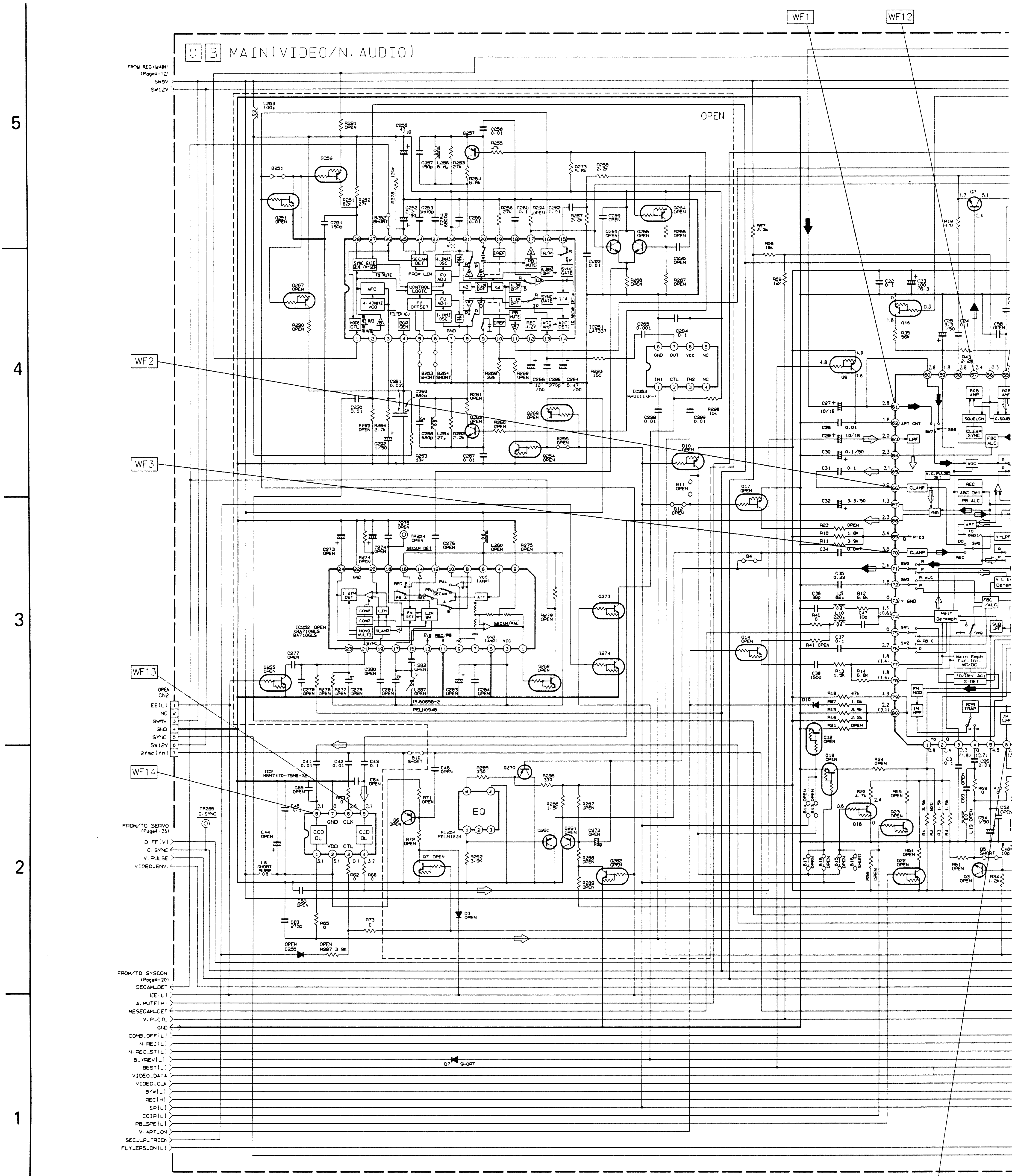
4.6 SWITCHING REGULATOR CIRCUIT BOARD


PRIMARY
F1
T1.25A
FC1
FC2
LF1
LF2
LIVE
NEUTRAL
CN1
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C14
C15
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
D1
D2
D3
D4
D5
D6
D7
D9
Q1
Q2
K1
K2
PC1
T1
V5
D51
D52
D53
D55
D57
D60
D61
D63
D65
D66
D67
C51
C52
C53
C54
C55
C56
C59
C60
C61
C64
C65
C66
C67
R55
R56
R57
R59
R60
R61
R62
R63
R64
L51
L52
L53
K52
Q51
CN2
CN5
WR1
WR2
0 1 PB11001
SW REG
PWB ASS'Y
UL MARK
A
B
C
1
2
3
4
5
6
7
8

COMPONENT PARTS LOCATION GUIDE <SW REG PWB>

REF.No.	LOCATION		
CAPACITOR			
C1	A	D	1B
C2	A	D	2A
C3	A	D	3B
C4	A	D	5A
C5	A	D	4B
C6	A	D	4A
C7	A	D	4B
C8	A	D	4A
C9	A	D	4B
C10	A	D	2B
C11	A	D	4B
C14	A	D	3A
C15	A	D	4A
C51	A	D	6A
C52	A	D	6B
C53	A	D	7A
C54	A	D	7B
C55	A	D	6B
C56	A	D	6B
C59	A	D	7B
C60	A	D	6A
C61	A	D	7A
C64	A	D	7B
C65	A	D	8A
C66	A	D	5A
C67	A	D	5A
CONNECTOR			
CN1	A	D	1A
CN2	A	D	7C
CN5	A	D	8B
DIODE			
D1	A	D	3B
D2	A	D	3B
D3	A	D	3A
D4	A	D	3A
D5	A	D	4A
D6	A	D	4B
D7	A	D	4B
D9	A	D	4A
D51	A	D	5B
D52	A	D	6B
D53	A	D	6A
D55	A	D	6B
D57	A	D	6A
D60	A	D	5C
D61	A	D	6A
D63	A	D	8A
D65	A	D	8B
D66	A	D	8A
D67	A	D	5A
COIL			
L51	A	D	7B
L52	A	D	7B
L53	A	D	7A
TRANSISTOR			
Q1	A	D	4B
Q2	A	D	3A
Q51	A	D	5A
RESISTOR			
R1	A	D	3B
R2	A	D	4B
R3	A	D	4B
R4	A	D	4B
R5	A	D	3A
R6	A	D	4A
R7	A	D	4A
R8	A	D	4B
R9	A	D	4B
R10	A	D	4A
R11	A	D	4A
R12	A	D	4B
R55	A	D	7C
R56	A	D	7A
R57	A	D	7A
R59	A	D	5A
R60	A	D	6A
R61	A	D	6A
R62	A	D	5A
R63	A	D	5A
R64	A	D	8A
OTHERS			
F1	A	D	2C
K1	A	D	4B
K2	A	D	4B
K52	A	D	6B
LF1	A	D	2B
LF2	A	D	2A
PC1	A	D	5A
T1	A	D	5A

4.7 VIDEO AND AUDIO SCHEMATIC DIAGRAM

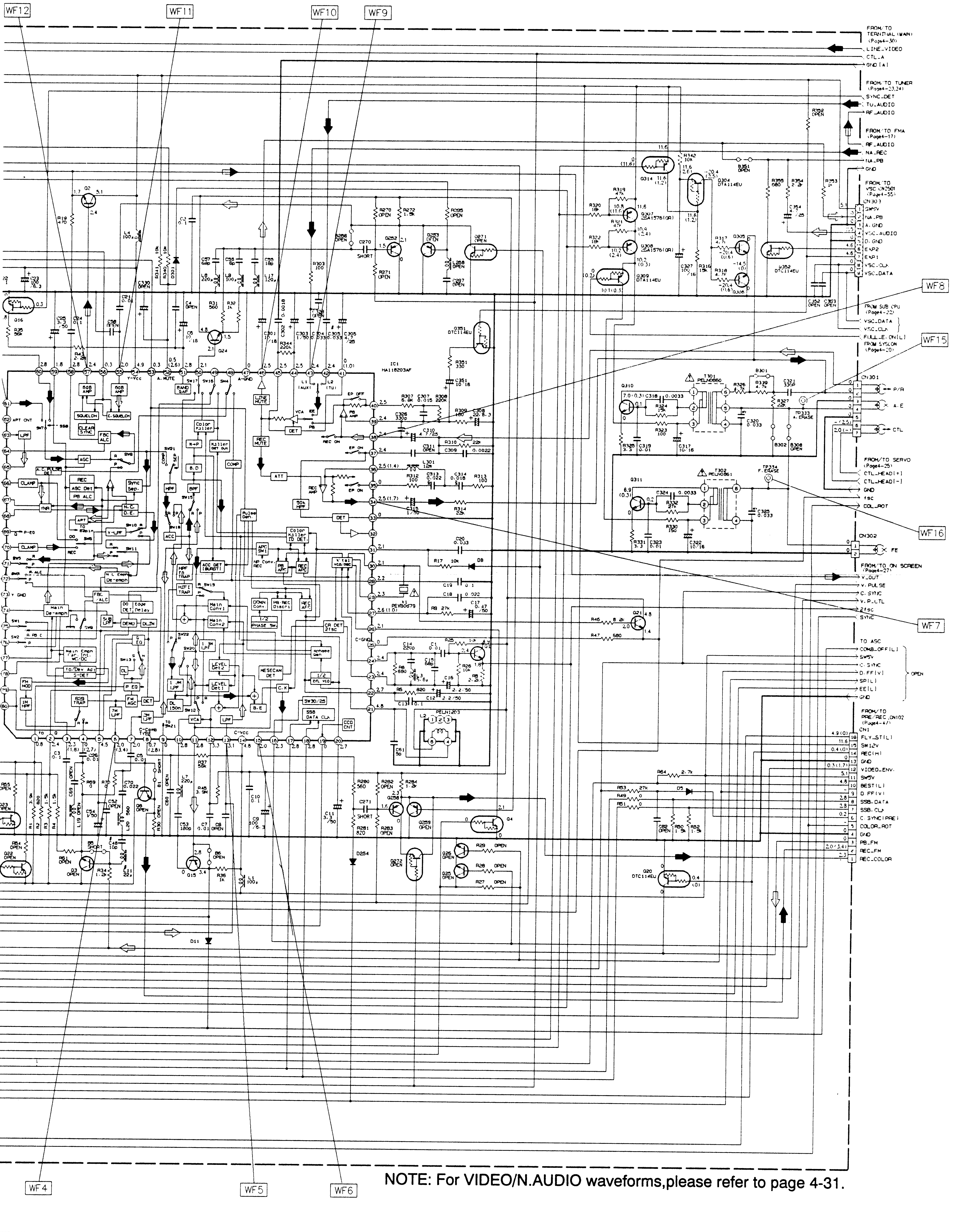

03 MAIN(VIDEO/N. AUDIO)
WF1
WF12
WF2
WF3
WF13
WF14
WF4
OPEN
FROM REG(MAIN) (Page4-12)
SW5V
SW12V
IC251 LA7337
IC253
IC252 OPEN XRA7108LS BA7108LS
IC2 MSM7470-79MS-KE
EQ
CN2
EE(L)
NC
SW5V
GND
SYNC
SW12V
2fsc(fh)
TP255 C.SYNC
FROM/TO SERVO (Page4-25)
D.FF(V)
C.SYNC
V.PULSE
VIDEO_ENV.
FROM/TO SYSCON (Page4-20)
SECAM_DET
EE(L)
A.MUTE(H)
MESECAM_DET
V.P_CTL
GND
COMB._OFF(L)
N.REC(L)
N.REC_ST(L)
B.Y.REV(L)
BEST(L)
VIDEO_DATA
VIDEO_CLK
B/W(L)
REC(H)
SP(L)
CCIR(L)
PB_SPE(L)
V.APT_ON
SEC_LP_TRICK
FLY_ERS_ON(L)
5
4
3
2
1

NOTES: 1. UNLESS OTHERWISE SPECIFILD.
ALL NPN TYP TRANSISTORS ARE 2SC4081(QRS).
ALL PNP TYP TRANSISTORS ARE 2SA1576(QRS).
ALL NPN TYP DIGITAL TRANSISTORS ARE DTC144WU.
ALL PNP TYP DIGITAL TRANSISTORS ARE DTA144WU.

2. COMPARISON CHART OF MODELS 2 MARKS(#).

REF NO.	MODELS	
	HR-E939EG	HR-E939EH
C305	OPEN	USED

A B C D

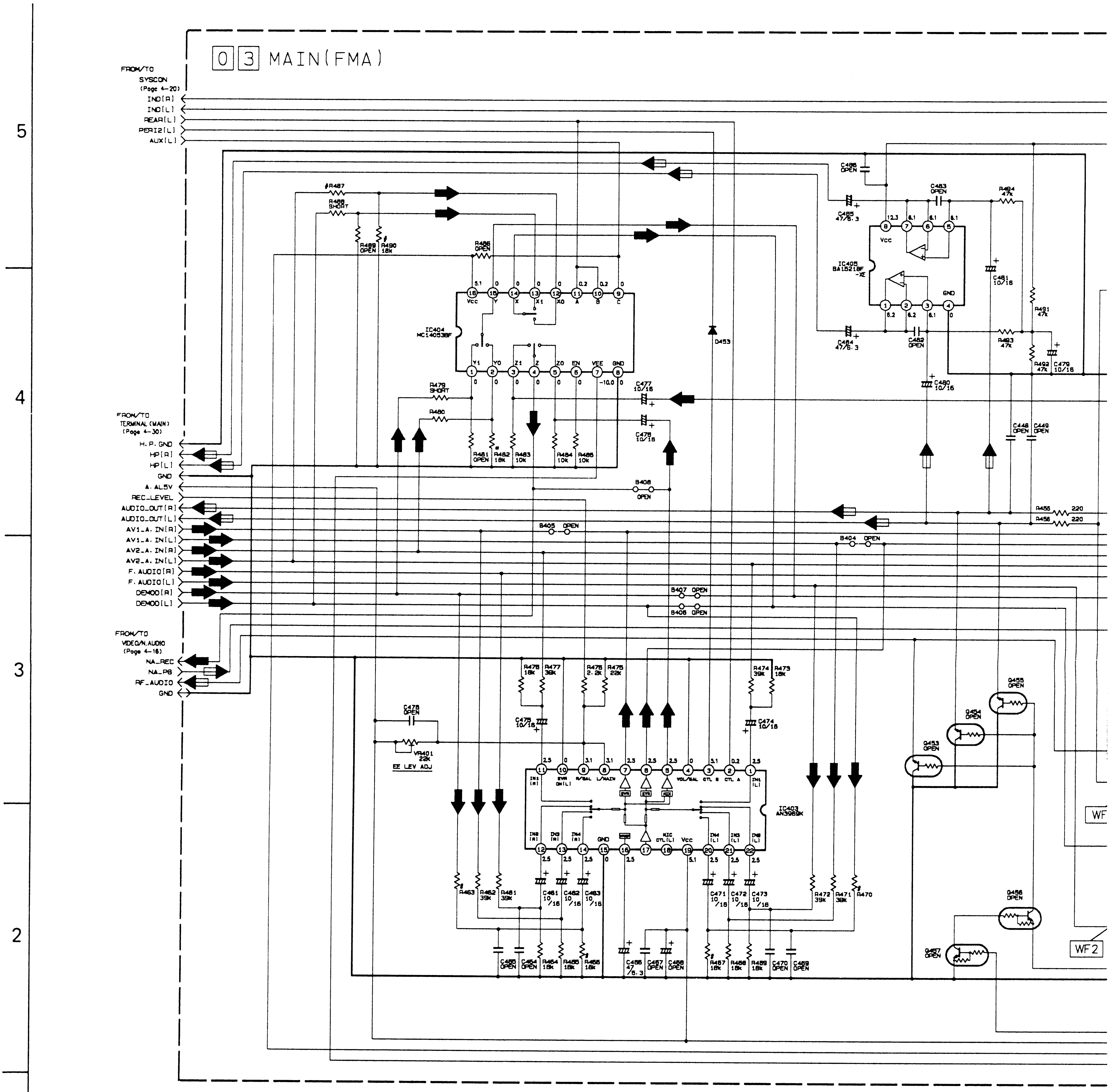


WF12
WF11
WF10
WF9
WF8
WF15
WF16
WF7
WF4
WF5
WF6
IC1
HA118203AF
FROM/TO TERMINAL (MAIN) (Page4-30)
LINE_VIDEO
CTL_A
GND [A]
FROM/TO TUNER (Page4-23,24)
SYNC_DET
TU_AUDIO
RF_AUDIO
FROM/TO FMA (Page4-17)
RF_AUDIO
NA_REC
NA_PB
GND
FROM/TO VSC CN2501 (Page4-55)
CN303
SW5V
NA_PB
A. GND
VSC_AUDIO
D. GND
EXP2
EXP1
VSC_CLK
VSC_DATA
FROM SUB CPU (Page4-22)
VSC_DATA
VSC_CLK
FULL_E. ON[L]
FROM SYSCON (Page4-20)
CN301
P/R
A. E
CTL
FROM/TO SERVO (Page4-25)
CTL_HEAD[+]
CTL_HEAD[-]
GND
fsc
COL_ROT
CN302
FE
FROM/TO ON SCREEN (Page4-27)
V_OUT
V. PULSE
C. SYNC
V. P_CTL
2fsc
SYNC
TO ASC
COMB_OFF[L]
SW5V
C. SYNC
D. FF[V]
SP[L]
EE[L]
GND
OPEN
FROM/TO PRE/REC CN102 (Page4-4/)
CN1
FLY_ST[L]
SW12V
REC[H]
GND
VIDEO_ENV.
SW5V
BEST[L]
D. FF[V]
SSB. DATA
SSB. CLK
C. SYNC[PRE]
COLOR_ROT
GND
PB_FM
REC_FM
REC_COLOR
T301 PELN0860
T302 PELN0861
TP333 A. ERASE
TP334 F. ERASE
Q310
Q311
Q304 DTA114EU
Q307 2SA1576(QR)
Q308 2SA1576(QR)
Q309 DTA114EU
Q305
Q352 DTC114EU
Q351 DTC114EU
Q21
Q20 DTC114EU
Q24
X1 PEVB0579
PELN1203
SQUELCH
C. SQUELCH
CLEAR SYNC
FBC ALC
AGC
A.C. PULSE DET
CLAMP
REC AGC Det
PB ALC
YNR
APT
Y-LPF
N.C. Emph De-emph
Main De-emph
Main Emph Car. Int. WC/DC
fo/Dev Adj S-DET
FM MOD
1M HPF
629 TRAP
7M LPF
FM AGC
DL
P. EQ
DEMO
DL IN
Color Killer
Killer Det out
N→P
B. D
COMP
Sync Sep.
HPF
BPF
ACC
ACC DET (BURST)
HIFI TRAP
Main Conv1
Main Conv2
1.3M LPF
LEVEL Det2
LEVEL Det1
DL 150n
VCA
LPF
B. E
C. K
APC SW1
Color Killer ID DET.
Pulse Gen.
DOWN Conv
PB/REC Discri
REC AFC
1/2 PHASE SW
NESECAN DET
CR DET 2fsc
X'tal VCO/OSC
Aphase Gen
1/2 CFL VCO
SW30/25
SSB DATA CLK
CCD CNT
LINE MUTE
REC MUTE
ATT
REC AMP
50k HPF
DET
VCA
BAND GAP
A. MUTE
Y-Vcc
C-Vcc
A-GND
APT CNT

NOTE: For VIDEO/N.AUDIO waveforms,please refer to page 4-31.

E F G H

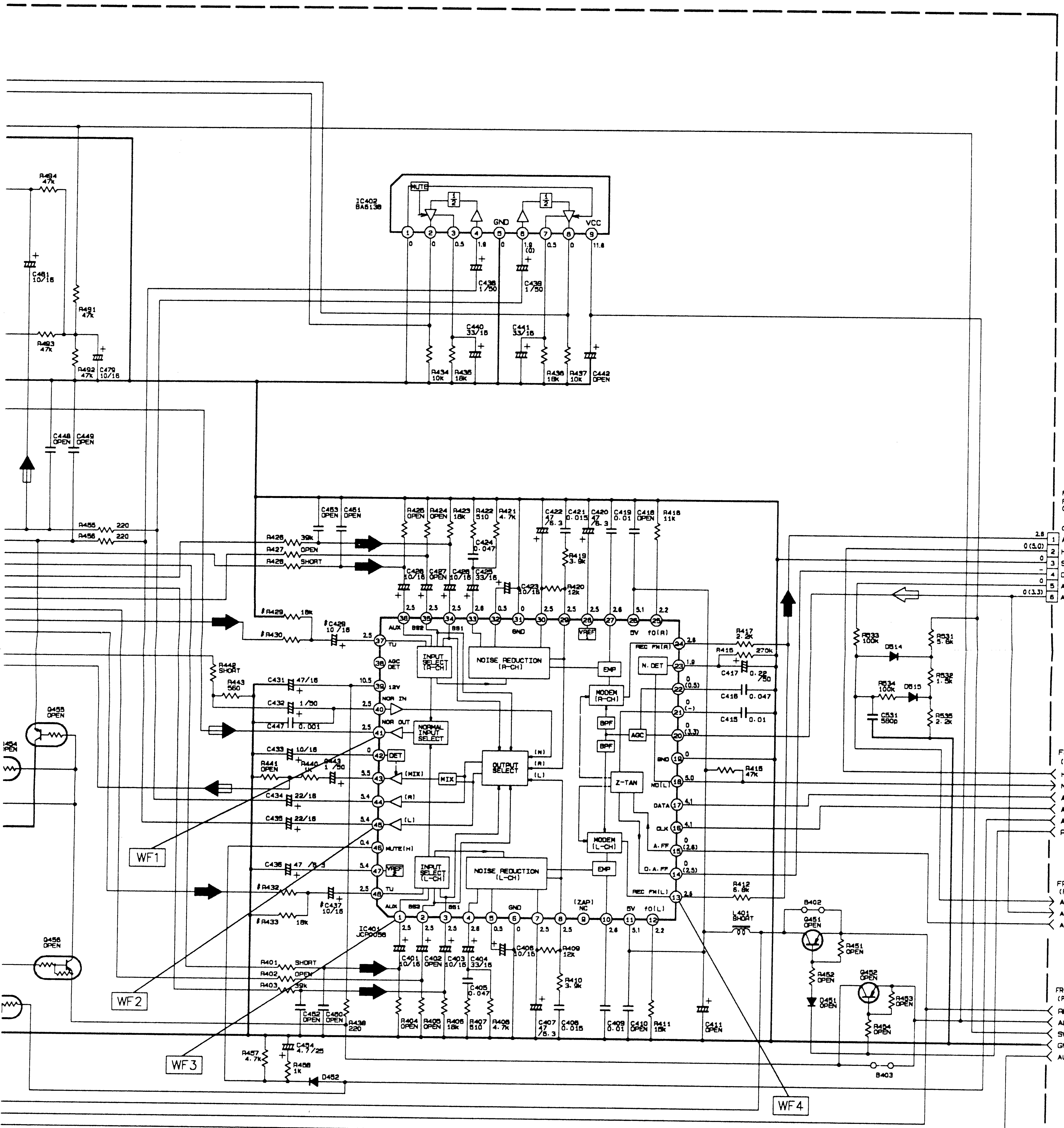
4.8 FMA SCHEMATIC DIAGRAM


03 MAIN(FMA)
FROM/TO SYSCON (Page 4-20)
IND(R)
IND(L)
REAR(L)
PERI2(L)
AUX(L)
FROM/TO TERMINAL (MAIN) (Page 4-30)
H.P.GND
HP(R)
HP(L)
GND
A.AL5V
REC_LEVEL
AUDIO_OUT(R)
AUDIO_OUT(L)
AV1_A.IN(R)
AV1_A.IN(L)
AV2_A.IN(R)
AV2_A.IN(L)
F.AUDIO(R)
F.AUDIO(L)
DEMOD(R)
DEMOD(L)
FROM/TO VIDEO/N.AUDIO (Page 4-16)
NA_REC
NA_PB
RF_AUDIO
GND
IC404 MC14053BF
IC405 BA15218F-XE
IC403 AN3969K
VR401 22K EE LEV ADJ
D453
Q453 OPEN
Q454 OPEN
Q455 OPEN
Q456 OPEN
Q457 OPEN
B404 OPEN
B405 OPEN
B406 OPEN
B407 OPEN
B408 OPEN
WF
WF2
5
4
3
2
1
A
B
C
D

NOTE : COMPARISON CHART OF MODELS & MARKS(#)

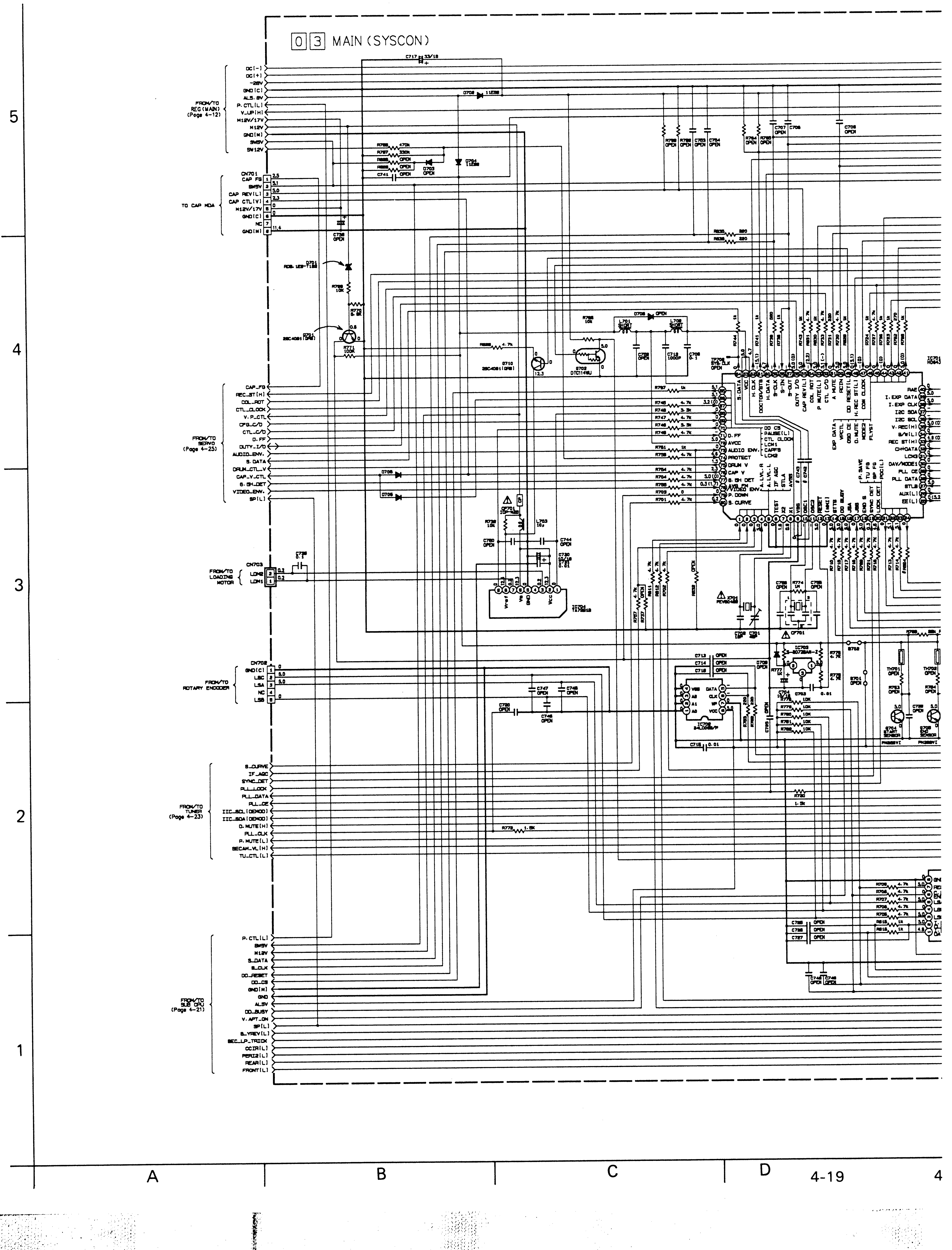
REF.No.	MODELS	
	HR-E939EG	HR-E939EH
R429	USED	OPEN
R430	39K	2.2K
R432	39K	2.2K
R433	USED	OPEN
R463	39K	2.2K
R466	USED	OPEN

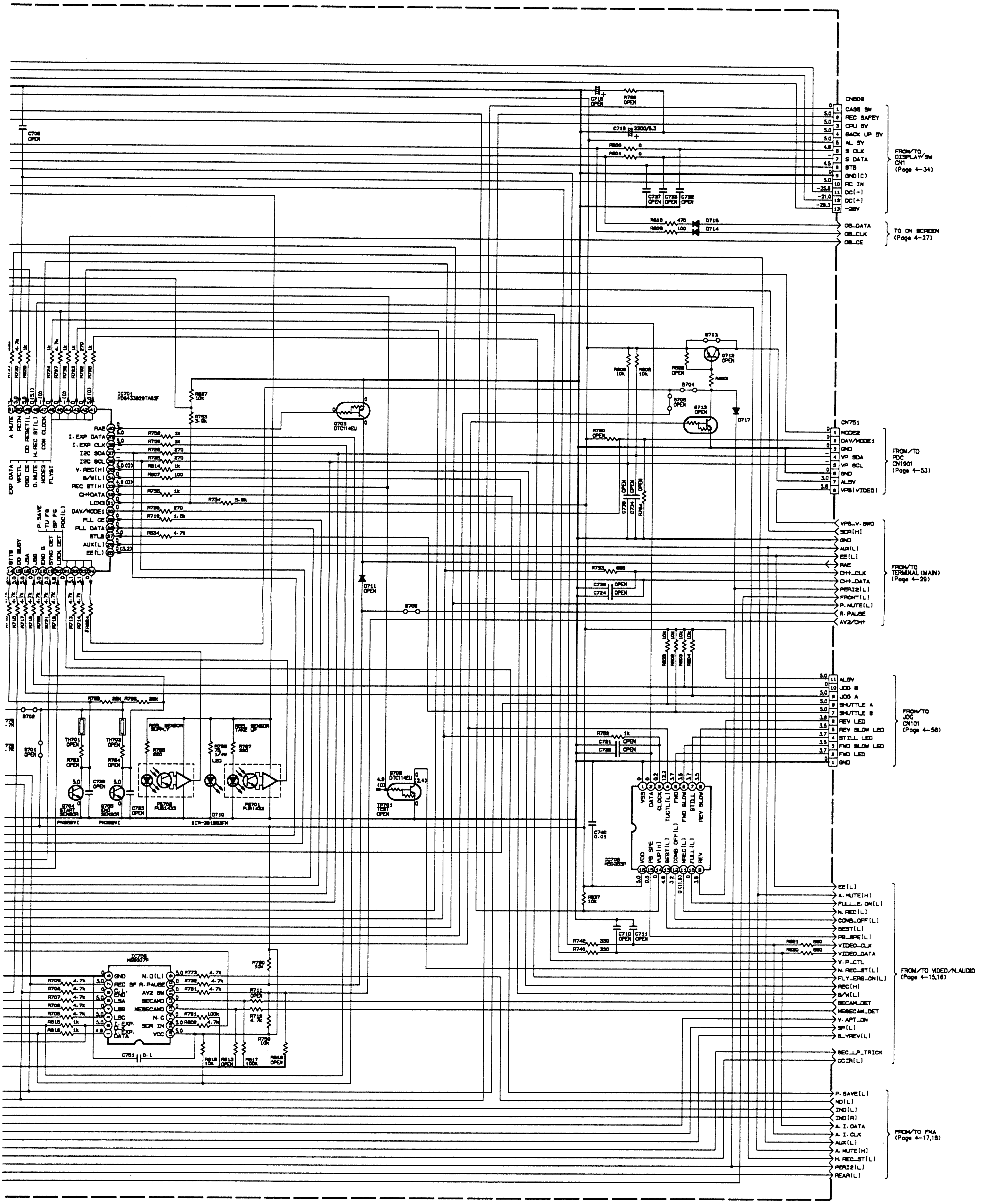
REF.No.	MODELS	
	HR-E939EG	HR-E939EH
R467	USED	OPEN
R470	39K	2.2K
R480	0	39K
R482	OPEN	USED
R487	0	39K
R490	OPEN	USED


IC402
BA6138
MUTE
GND
VCC
IC401
JCP0056
NOISE REDUCTION (R-CH)
NOISE REDUCTION (L-CH)
INPUT SELECT (R-CH)
INPUT SELECT (L-CH)
NORMAL INPUT SELECT
OUTPUT SELECT
MIX
DET
EMP
N.DET
MODEM (R-CH)
MODEM (L-CH)
BPF
AGC
Z-TAN
VREF
WF1
WF2
WF3
WF4
Q455 OPEN
Q456 OPEN
Q451 OPEN
Q452 OPEN
D452
D514
D515
D451 OPEN
L401 SHORT
B402
B403
FROM/TO FMA PRE/REC CN501 (Page 4-51)
CN401
A.REC_FM
H.REC_ST(L)
SP(L)
O.A.FF
AUDIO_ENV.
A.PB_FM
FROM/TO SYSCON (Page 4-20)
H.REC_ST(L)
NO(L)
A.I.DATA
A.I.CLK
A.MUTE(H)
P.SAVE(L)
FROM/TO SERVO (Page 4-26)
AUDIO_ENV.
A.PB_FM
A.FF
FROM REC(MAIN) (Page 4-12)
RF5V
AL12V
SW12V
GND
AUDIO(-)

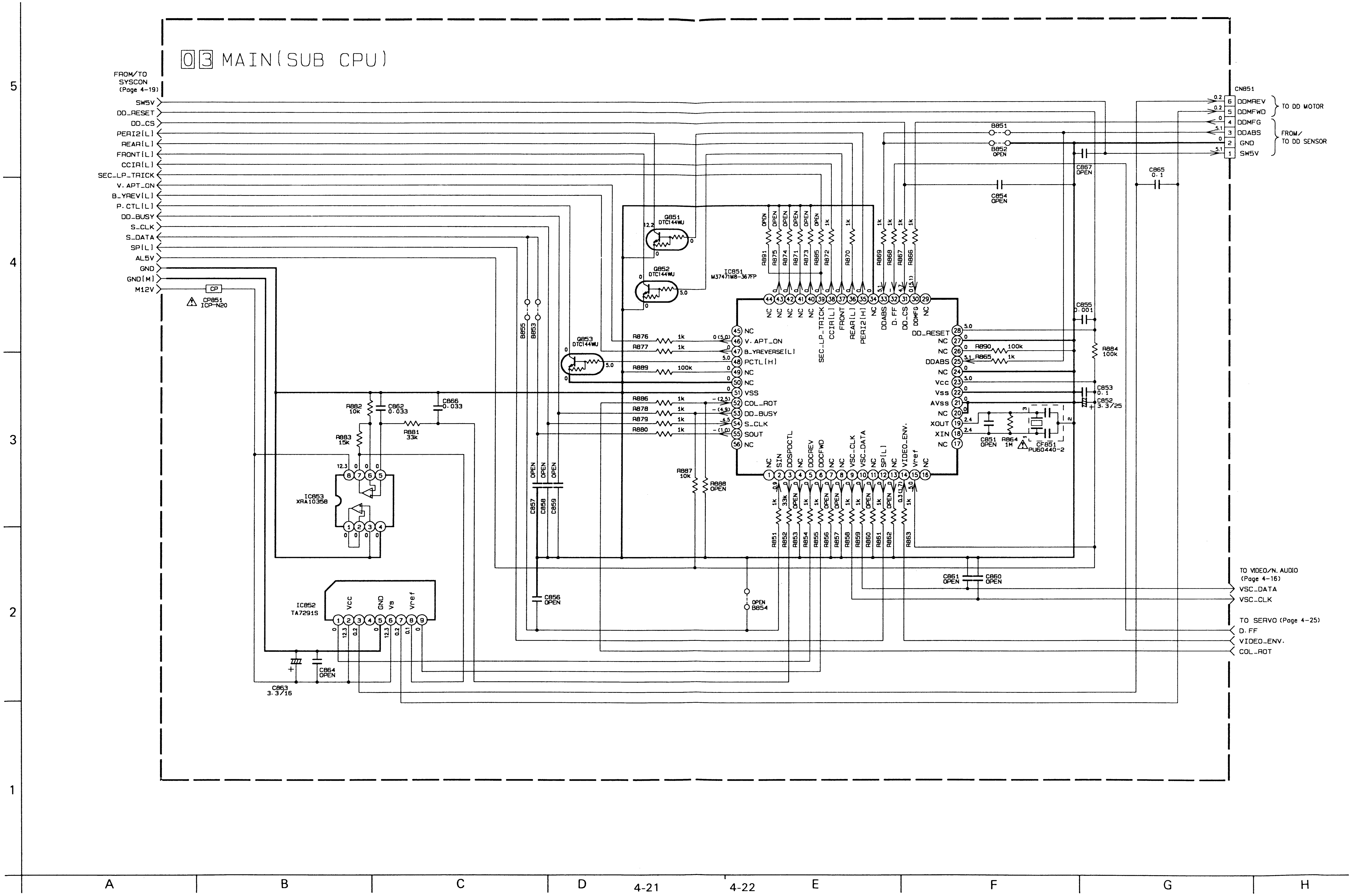
NOTE: For FMA waveforms,please refer to page 4-31.

4.9 SYSTEM CONTROL SCHEMATIC DIAGRAM

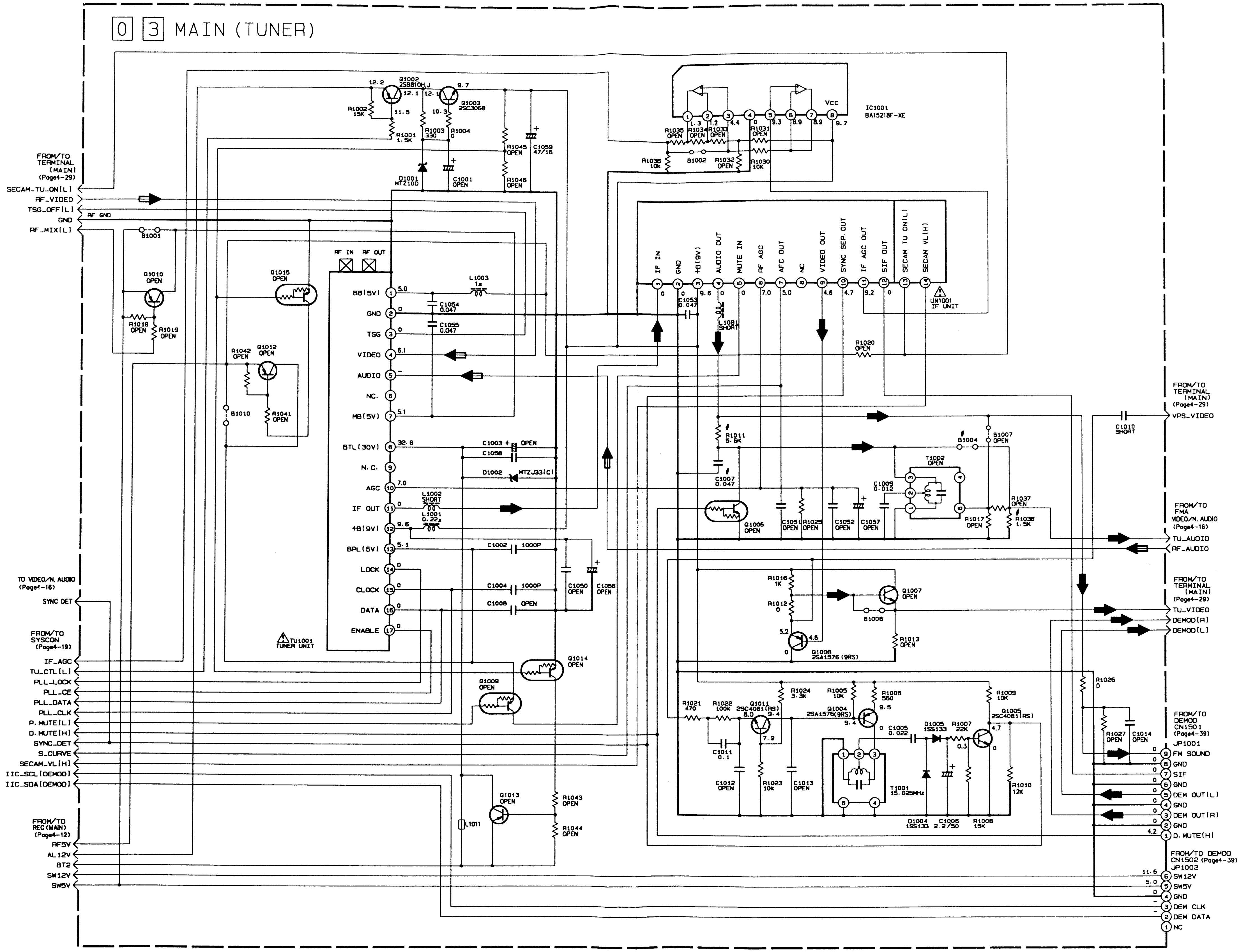

03 MAIN (SYSCON)
FROM/TO REG(MAIN) (Page 4-12)
DC(-)
DC(+)
-28V
GND(C)
AL5.8V
P. CTL(L)
V_UP(H)
M12V/17V
M12V
GND(M)
SW5V
SW12V
TO CAP MDA
CN701
CAP FG
SW5V
CAP REV(L)
CAP CTL(V)
M12V/17V
GND(C)
NC
GND(M)
FROM/TO SERVO (Page 4-25)
CAP_FG
REC_ST(H)
COL_ROT
CTL_CLOCK
V. P_CTL
CFG_C/D
CTL_C/D
D. FF
DUTY_I/O
AUDIO_ENV.
S. DATA
DRUM_CTL_V
CAP_V_CTL
S. SH_DET
VIDEO_ENV.
SP(L)
FROM/TO LOADING MOTOR
CN703
LDM2
LDM1
IC704 TA7291S
FROM/TO ROTARY ENCODER
CN702
GND(C)
LSC
LSA
NC
LSB
IC702 24LC08B/P
IC703 S-80728AN-Z
X701
TH701 OPEN
TH702 OPEN
Q704 START SENSOR
Q705 END SENSOR
FROM/TO TUNER (Page 4-23)
S_CURVE
IF_AGC
SYNC_DET
PLL_LOCK
PLL_DATA
PLL_CE
IIC_SCL(DEMOD)
IIC_SDA(DEMOD)
D. MUTE(H)
PLL_CLK
P. MUTE(L)
SECAM_VL(H)
TU_CTL(L)
FROM/TO SUB CPU (Page 4-21)
P. CTL(L)
SW5V
M12V
S_DATA
S_CLK
DD_RESET
DD_CS
GND(M)
GND
AL5V
DD_BUSY
V. APT_ON
SP(L)
S_YREV(L)
SEC_LP_TRICK
CCIR(L)
PERI2(L)
REAR(L)
FRONT(L)
5
4
3
2
1
A
B
C
D


CN802
1 CASS SW
2 REC SAFEY
3 CPU 5V
4 BACK UP 5V
5 AL 5V
6 S CLK
7 S DATA
8 STB
9 GND(C)
10 RC IN
11 DC(-)
12 DC(+)
13 -28V
0
5.0
5.0
5.0
5.0
4.8
-
4.5
0
5.0
-25.6
-21.0
-28.3
FROM/TO DISPLAY/SW CN1 (Page 4-34)
OS_DATA
OS_CLK
OS_CE
TO ON SCREEN (Page 4-27)
C718 OPEN
R799 OPEN
C719 2200/5.3
R800 0
R801 0
C727 OPEN
C738 OPEN
C739 OPEN
R810 470
R809 100
D715
D714
C706 OPEN
CN751
1 MODE2
2 DAV/MODE1
3 GND
4 VP SDA
5 VP SCL
6 GND
7 AL5V
8 VPS(VIDEO)
FROM/TO PDC CN1901 (Page 4-53)
VPS_V.SWO
SCR(H)
GND
AUX(L)
EE(L)
RAE
CH+_CLK
CH+_DATA
PERI2(L)
FRONT(L)
P.MUTE(L)
R.PAUSE
AV2/CH+
FROM/TO TERMINAL (MAIN) (Page 4-29)
11 AL5V
10 JOG B
9 JOG A
8 SHUTTLE A
7 SHUTTLE B
6 REV LED
5 REV SLOW LED
4 STILL LED
3 FWD SLOW LED
2 FWD LED
1 GND
5.0
0
5.0
5.0
5.0
3.8
3.5
3.7
3.5
3.7
0
FROM/TO JOG CN101 (Page 4-58)
EE(L)
A.MUTE(H)
FULL_E.ON(L)
N.REC(L)
COMB_OFF(L)
BEST(L)
PB_SPE(L)
VIDEO_CLK
VIDEO_DATA
V.P_CTL
N.REC_ST(L)
FLY_ERS_ON(L)
REC(H)
B/W(L)
SECAM_DET
MESECAM_DET
V.APT_ON
SP(L)
S_YREV(L)
SEC_LP_TRICK
CCIR(L)
FROM/TO VIDEO/N.AUDIO (Page 4-15,16)
P.SAVE(L)
ND(L)
IND(L)
IND(R)
A.I.DATA
A.I.CLK
AUX(L)
A.MUTE(H)
H.REC_ST(L)
PERI2(L)
REAR(L)
FROM/TO FMA (Page 4-17,18)
S703
Q712 OPEN
R808 10k
R809 10k
R802 OPEN
R803
S704
S705 OPEN
Q713 OPEN
D717
R760 OPEN
C735 OPEN
C734 OPEN
R734
R793 680
C729 OPEN
C724 OPEN
R833 10k
R808 10k
R803 10k
R804 10k
Q703 DTC114EU
D711 OPEN
S706
IC701 HD6433829TA62F
A MUTE
RCIN
DD RESET(L)
H.REC ST(L)
COM CLOCK
EXP DATA
VPCTL
OSD CE
D.MUTE
MODE2
FLYST
RAE
I.EXP DATA
I.EXP CLK
I2C SDA
I2C SCL
V.REC(H)
B/W(L)
REC ST(H)
CH+DATA
LCKG
DAV/MODE1
PLL CE
PLL DATA
STLB
AUX(L)
EE(L)
P.SAVE
TU FG
SP FG
PDC(L)
STTB
DD BUSY
JSA
JSB
END S
SYNC DET
LOCK DET
R730 4.7k
R839 1k
R724 1k
R727 4.7k
R736 1k
R723 1k
R782 270
R785 1k
R827 10k
R753 3.9k
R756 1k
R759 1k
R726 270
R725 270
R814 1k
R807 100
R735 1k
R734 5.6k
R780 270
R719 1.5k
R834 4.7k
5.0 (0)
4.8 (0)
0 (5.2)
R715 4.7k
R717 4.7k
R716 4.7k
R720 4.7k
R721 4.7k
R718 4.7k
R713 4.7k
R714 4.7k
R884
R769 39k
R768 39k
S702
S701 OPEN
TH701 OPEN
TH702 OPEN
R763 OPEN
R764 OPEN
C728 OPEN
C723 OPEN
Q704 START SENSOR
Q705 END SENSOR
PN259VI
PN259VI
REEL SENSOR SUPPLY
R765 220
PS702 PU81433
R766 75 1/4W
LED
D710
R767 220
REEL SENSOR TAKE UP
PS701 PU81433
SIR-381SB3FN
Q706 DTC114EU
4.9 (0)
0 (2.4)
TP701 TEST OPEN
R792 1k
C721 OPEN
C720 OPEN
C740 0.01
IC705 M50203P
VSS
DATA
CLOCK
TUCTL(L)
FWD
FWD SLOW
STILL
REV SLOW
VDD
PB SPE
VUP(H)
BEST(L)
COMB OFF(L)
NREC(L)
FULL(L)
REV
0
0
0.2
12.2
3.7
3.5
3.7
3.5
5.0
0.5
0
4.8
3.2
0 (11.8)
0
3.8
R837 10k
C710 OPEN
C711 OPEN
R742 330
R740 330
R821 680
R820 680
IC706 M66007P
GND
REC SF
C.L. END
LSA
LSB
LSC
I.EXP. CLK
I.EXP. DATA
N.D(L)
R.PAUSE
AV2 SW
SECAMD
MESECAMD
N.C
SCR IN
VCC
R709 4.7k
R708 4.7k
R707 4.7k
R706 4.7k
R705 4.7k
R815 1k
R816 1k
R773 4.7k
R722 4.7k
R781 4.7k
R791 100k
R806 4.7k
C751 0.1
R790 10k
R711 OPEN
R712 4.7k
R790 10k
R819 10k
R813 OPEN
R817 100k
R818 OPEN

4.10 SUB CPU SCHEMATIC DIAGRAM


03 MAIN(SUB CPU)
FROM/TO SYSCON (Page 4-19)
SW5V
DD_RESET
DD_CS
PERI2[L]
REAR[L]
FRONT[L]
CCIR[L]
SEC_LP_TRICK
V. APT_ON
B_YREV[L]
P. CTL[L]
DD_BUSY
S_CLK
S_DATA
SP[L]
AL5V
GND
GND[M]
M12V
CP851 ICP-N20
CP
Q851 DTC144WU
Q852 DTC144WU
Q853 DTC144WU
IC851 M37471M8-367FP
IC852 TA7291S
IC853 XRA10358
Vcc
GND
Vs
Vref
R882 10K
C862 0.033
C866 0.033
R881 33K
R883 15K
C863 3.3/16
C864 OPEN
C856 OPEN
C857 OPEN
C858 OPEN
C859 OPEN
B853
B855
B854 OPEN
R887 10K
R888 OPEN
R876 1k
R877 1k
R889 100k
R886 1k
R878 1k
R879 1k
R880 1k
NC
V. APT_ON
B_YREVERSE[L]
PCTL[H]
VSS
COL_ROT
DD_BUSY
S_CLK
SOUT
SIN
DDSPDCTL
DDCREV
DDCFWD
VSC_CLK
VSC_DATA
SP[L]
VIDEO_ENV.
Vref
SEC_LP_TRICK
CCIR[L]
FRONT
REAR[L]
PERI2[H]
DDABS
D. FF
DD_CS
DDMFG
DD_RESET
DDABS
Vcc
Vss
AVss
XOUT
XIN
R891
R875
R874
R871
R873
R885
R872
R870
R869
R868
R867
R866
R851
R852
R853
R854
R855
R856
R857
R858
R859
R860
R861
R862
R863
R890 100k
R865 1k
R884 100K
R864 1M
C851 OPEN
CF851 PU60440-2
C852 3.3/25
C853 0.1
C855 0.001
C854 OPEN
C867 OPEN
C865 0.1
C860 OPEN
C861 OPEN
B851
B852 OPEN
CN851
DDMREV
DDMFWD
DDMFG
DDABS
GND
SW5V
TO DD MOTOR
FROM/ TO DD SENSOR
TO VIDEO/N. AUDIO (Page 4-16)
VSC_DATA
VSC_CLK
TO SERVO (Page 4-25)
D. FF
VIDEO_ENV.
COL_ROT
1
2
3
4
5
A
B
C
D
E
F
G
H

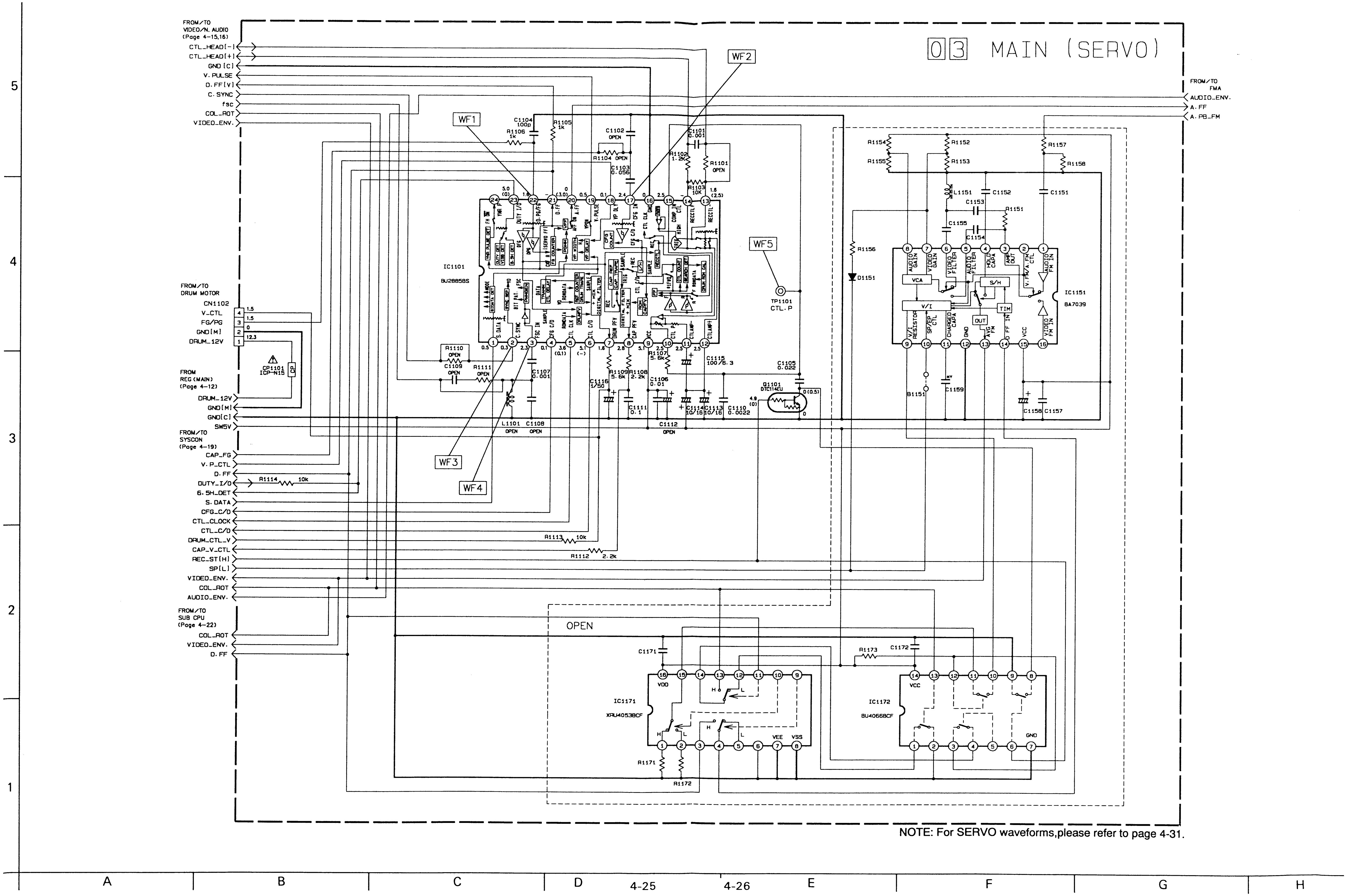
4.11 TUNER SCHEMATIC DIAGRAM


03 MAIN (TUNER)
FROM/TO TERMINAL (MAIN) (Page4-29)
SECAM_TU_ON(L)
RF_VIDEO
TSG_OFF(L)
GND
RF_MIX(L)
RF GND
B1001
Q1010 OPEN
R1018 OPEN
R1019 OPEN
Q1015 OPEN
R1042 OPEN
Q1012 OPEN
B1010
R1041 OPEN
Q1002 2SB810H,J
Q1003 2SC3068
R1002 15K
R1001 1.5K
R1003 330
R1004 0
D1001 MTZ100
C1001 OPEN
R1045 OPEN
C1059 47/16
R1046 OPEN
RF IN
RF OUT
BB(5V)
GND
TSG
VIDEO
AUDIO
NC.
MB(5V)
BTL(30V)
N.C.
AGC
IF OUT
+B(9V)
BPL(5V)
LOCK
CLOCK
DATA
ENABLE
TU1001 TUNER UNIT
L1003 1μ
C1054 0.047
C1055 0.047
C1003 OPEN
C1058
D1002 MTZJ33(C)
L1002 SHORT
L1001 0.22μ
C1002 1000P
C1004 1000P
C1006 OPEN
C1050 OPEN
C1056 OPEN
Q1014 OPEN
Q1009 OPEN
Q1013 OPEN
L1011
R1043 OPEN
R1044 OPEN
TO VIDEO/N. AUDIO (Page4-16)
SYNC DET
FROM/TO SYSCON (Page4-19)
IF_AGC
TU_CTL(L)
PLL_LOCK
PLL_CE
PLL_DATA
PLL_CLK
P.MUTE(L)
D.MUTE(H)
SYNC_DET
S_CURVE
SECAM_VL(H)
IIC_SCL(DEMOD)
IIC_SDA(DEMOD)
FROM/TO REG(MAIN) (Page4-12)
RF5V
AL12V
BT2
SW12V
SW5V
IC1001 BA15218F-XE
VCC
R1035 OPEN
R1034 OPEN
R1033 OPEN
R1031 OPEN
R1036 10K
B1002
R1032 OPEN
R1030 10K
IF IN
GND
+B(9V)
AUDIO OUT
MUTE IN
RF AGC
AFC OUT
NC
VIDEO OUT
SYNC SEP. OUT
IF AGC OUT
SIF OUT
SECAM TU ON(L)
SECAM VL(H)
UN1001 IF UNIT
C1053 0.047
L1081 SHORT
R1020 OPEN
R1011 5.6K
C1007 0.047
Q1006 OPEN
C1051 OPEN
R1025 OPEN
C1052 OPEN
C1057 OPEN
C1009 0.012
T1002 OPEN
B1004
B1007 OPEN
R1017 OPEN
R1037 OPEN
R1038 1.5K
FROM/TO TERMINAL (MAIN) (Page4-29)
VPS_VIDEO
C1010 SHORT
FROM/TO FMA VIDEO/N. AUDIO (Page4-16)
TU_AUDIO
RF_AUDIO
FROM/TO TERMINAL (MAIN) (Page4-29)
TU_VIDEO
DEMOD(R)
DEMOD(L)
R1016 1K
R1012 0
Q1007 OPEN
B1006
Q1008 2SA1576(9RS)
R1013 OPEN
R1021 470
R1022 100K
Q1011 2SC4081(RS)
R1024 3.3K
R1005 10K
Q1004 2SA1576(9RS)
R1006 560
R1009 10K
Q1005 2SC4081(RS)
R1026 0
C1011 0.1
C1012 OPEN
R1023 10K
C1013 OPEN
C1005 0.022
D1005 1SS133
R1007 22K
T1001 15.625MHz
D1004 1SS133
C1006 2.2/50
R1008 15K
R1010 12K
R1027 OPEN
C1014 OPEN
FROM/TO DEMOD CN1501 (Page4-39)
JP1001
FM SOUND
GND
SIF
GND
DEM OUT(L)
GND
DEM OUT(R)
GND
D.MUTE(H)
FROM/TO DEMOD CN1502 (Page4-39)
JP1002
SW12V
SW5V
GND
DEM CLK
DEM DATA
NC
1
2
3
4
5
A
B
C
D
E
F
G
H

NOTE: COMPARISON CHART OF MODELS & MARKS (#).

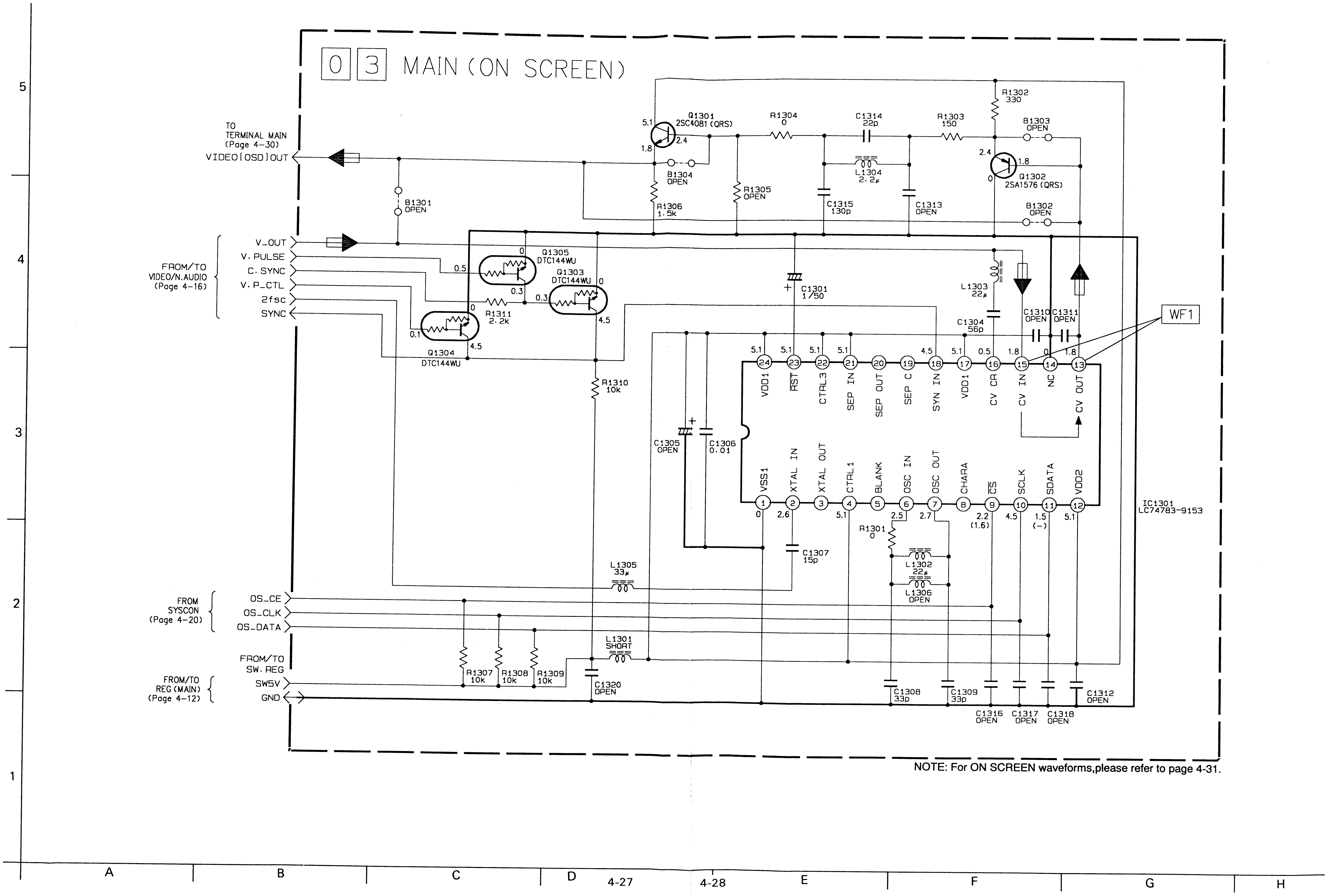
REF NO.	MODELS	
	HR-E939EG	HR-E939EH
R1011	OPEN	USED
R1038	OPEN	USED
C1007	OPEN	USED
B1004	OPEN	USED

4.12 SERVO SCHEMATIC DIAGRAM


03 MAIN (SERVO)
FROM/TO VIDEO/N. AUDIO (Page 4-15,16)
CTL_HEAD(-)
CTL_HEAD(+)
GND(C)
V. PULSE
D. FF(V)
C. SYNC
fsc
COL_ROT
VIDEO_ENV.
FROM/TO FMA
AUDIO_ENV.
A. FF
A. PB_FM
FROM/TO DRUM MOTOR
CN1102
V_CTL
FG/PG
GND(M)
DRUM_12V
FROM REG(MAIN) (Page 4-12)
DRUM_12V
GND(M)
GND(C)
SW5V
FROM/TO SYSCON (Page 4-19)
CAP_FG
V. P_CTL
D. FF
DUTY_I/O
6. 5H_DET
S. DATA
CFG_C/D
CTL_CLOCK
CTL_C/D
DRUM_CTL_V
CAP_V_CTL
REC_ST(H)
SP(L)
VIDEO_ENV.
COL_ROT
AUDIO_ENV.
FROM/TO SUB CPU (Page 4-22)
COL_ROT
VIDEO_ENV.
D. FF
WF1
WF2
WF3
WF4
WF5
IC1101
BU2885S
IC1151
BA7039
IC1171
XRU4053BCF
IC1172
BU4066BCF
CP1101 ICP-N15
TP1101 CTL.P
Q1101 DTC114EU
D1151
R1101 OPEN
R1102 1.2K
R1103 10K
R1104 OPEN
R1105 1k
R1106 1k
R1107 5.6k
R1108 2.2K
R1109 5.6K
R1110 OPEN
R1111 OPEN
R1112 2.2k
R1113 10k
R1114 10k
C1101 0.001
C1102 OPEN
C1103 0.056
C1104 100p
C1105 0.022
C1106 0.01
C1107 0.001
C1108 OPEN
C1109 OPEN
C1110 0.0022
C1111 0.1
C1112 OPEN
C1113 10/16
C1114 10/16
C1115 100/6.3
C1116 1/50
L1101 OPEN
R1151
R1152
R1153
R1154
R1155
R1156
R1157
R1158
L1151
C1151
C1152
C1153
C1154
C1155
C1157
C1158
C1159
B1151
C1171
C1172
R1171
R1172
R1173
OPEN
VDD
VEE
VSS
VCC
GND
H
L
AUDIO GAIN
VIDEO GAIN
VIDEO FILTER
AUDIO FILTER
HOLD CAPA
AMP OUT
V.FM/A.FM CTL
AUDIO FM IN
V/I RESISTOR
SP/EP CTL
CHARGED CAPA
GND
AVG FM
FF IN
VCC
VIDEO FM IN
VCA
V/I
S/H
TIM
OUT
S. DATA
C. SYNC
fsc IN
CFG C/D
CTL CLK
CTL C/D
DRUM PFY
CAP PFY
VCC
CTL P3
CTLAMP-
CTLAMP+
DUTY I/O
D. FF
V. PULSE
CFG IN
COMP CTL
REC CTL
A
B
C
D
E
F
G
H
1
2
3
4
5

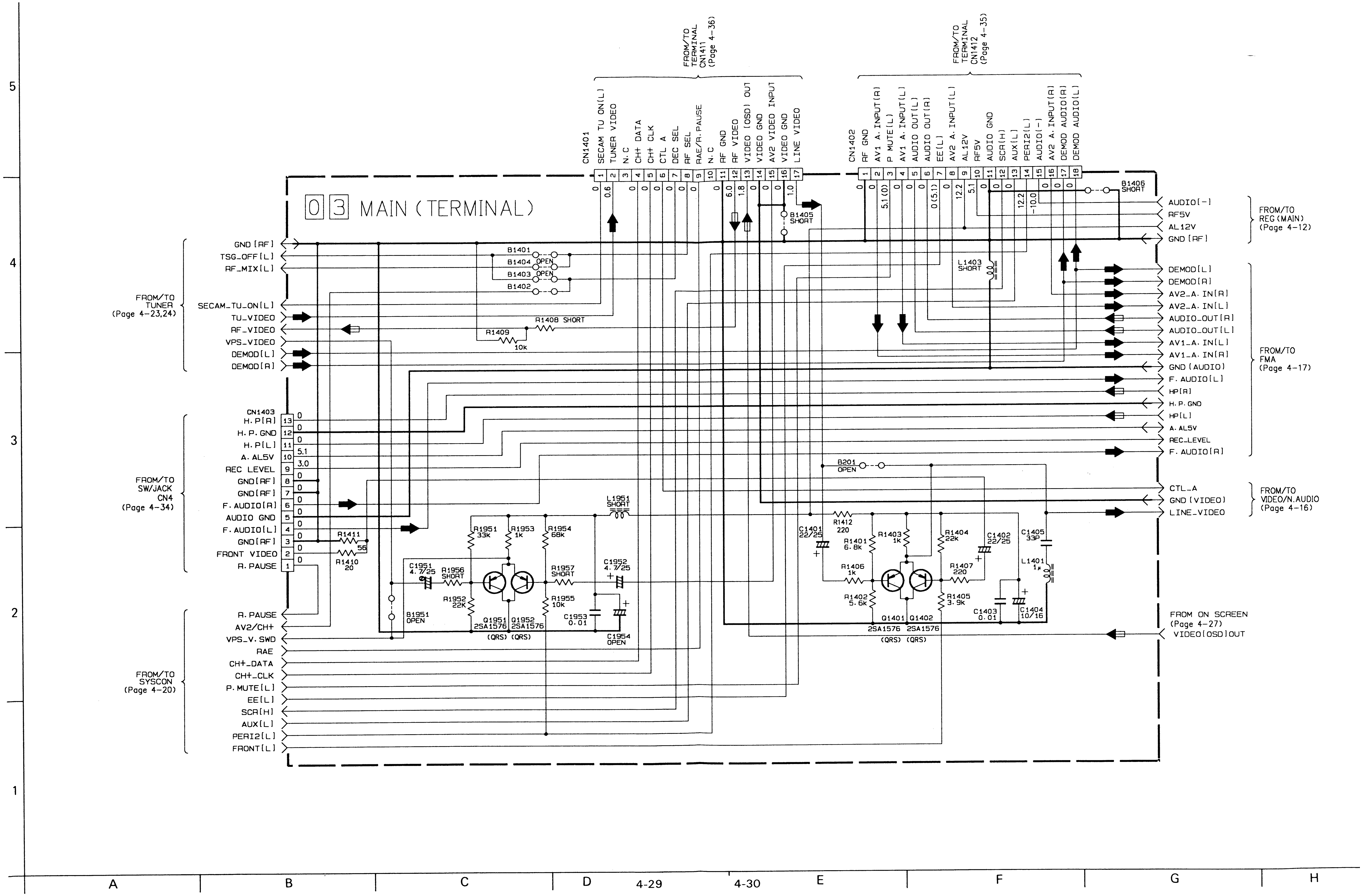
NOTE: For SERVO waveforms,please refer to page 4-31.

4.13 ON SCREEN SCHEMATIC DIAGRAM


03 MAIN (ON SCREEN)
TO TERMINAL MAIN (Page 4-30)
VIDEO[OSD]OUT
FROM/TO VIDEO/N.AUDIO (Page 4-16)
V_OUT
V.PULSE
C.SYNC
V.P_CTL
2fsc
SYNC
FROM SYSCON (Page 4-20)
OS_CE
OS_CLK
OS_DATA
FROM/TO SW.REG
FROM/TO REG(MAIN) (Page 4-12)
SW5V
GND
Q1301 2SC4081(QRS)
Q1302 2SA1576(QRS)
Q1303 DTC144WU
Q1304 DTC144WU
Q1305 DTC144WU
R1302 330
R1303 150
R1304 0
R1305 OPEN
R1306 1.5k
R1307 10k
R1308 10k
R1309 10k
R1310 10k
R1311 2.2k
R1301 0
C1301 1/50
C1304 56p
C1305 OPEN
C1306 0.01
C1307 15p
C1308 33p
C1309 33p
C1310 OPEN
C1311 OPEN
C1312 OPEN
C1313 OPEN
C1314 22p
C1315 130p
C1316 OPEN
C1317 OPEN
C1318 OPEN
C1320 OPEN
L1301 SHORT
L1302 22μ
L1303 22μ
L1304 2.2μ
L1305 33μ
L1306 OPEN
B1301 OPEN
B1302 OPEN
B1303 OPEN
B1304 OPEN
WF1
IC1301 LC74783-9153
VSS1
XTAL IN
XTAL OUT
CTRL1
BLANK
OSC IN
OSC OUT
CHARA
CS
SCLK
SDATA
VDD2
VDD1
RST
CTRL3
SEP IN
SEP OUT
SEP C
SYN IN
VDD1
CV CR
CV IN
NC
CV OUT
5.1
1.8
2.4
0.5
0.3
0.1
4.5
0
2.6
2.5
2.7
2.2 (1.6)
1.5 (-)
5
4
3
2
1
A
B
C
D
E
F
G
H

NOTE: For ON SCREEN waveforms,please refer to page 4-31.

4.14 TERMINAL (MAIN) SCHEMATIC DIAGRAM

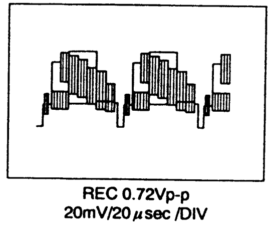

03 MAIN (TERMINAL)
FROM/TO TERMINAL CN1411 (Page 4-36)
CN1401
1 SECAM TU ON[L]
2 TUNER VIDEO
3 N.C
4 CH+ DATA
5 CH+ CLK
6 CTL A
7 DEC SEL
8 RF SEL
9 RAE/R.PAUSE
10 N.C
11 RF GND
12 RF VIDEO
13 VIDEO (OSD) OUT
14 VIDEO GND
15 AV2 VIDEO INPUT
16 VIDEO GND
17 LINE VIDEO
FROM/TO TERMINAL CN1412 (Page 4-35)
CN1402
1 RF GND
2 AV1 A. INPUT[R]
3 P MUTE[L]
4 AV1 A. INPUT[L]
5 AUDIO OUT[L]
6 AUDIO OUT[R]
7 EE[L]
8 AV2 A. INPUT[L]
9 AL12V
10 RF5V
11 AUDIO GND
12 SCR[H]
13 AUX[L]
14 PERI2[L]
15 AUDIO[-]
16 AV2 A. INPUT[R]
17 DEMOD AUDIO[R]
18 DEMOD AUDIO[L]
B1405 SHORT
B1406 SHORT
AUDIO[-]
RF5V
AL12V
GND[RF]
FROM/TO REG(MAIN) (Page 4-12)
DEMOD[L]
DEMOD[R]
AV2_A. IN[R]
AV2_A. IN[L]
AUDIO_OUT[R]
AUDIO_OUT[L]
AV1_A. IN[L]
AV1_A. IN[R]
GND(AUDIO)
F. AUDIO[L]
HP[R]
H. P. GND
HP[L]
A. AL5V
REC_LEVEL
F. AUDIO[R]
FROM/TO FMA (Page 4-17)
CTL_A
GND(VIDEO)
LINE_VIDEO
FROM/TO VIDEO/N.AUDIO (Page 4-16)
FROM ON SCREEN (Page 4-27)
VIDEO(OSD)OUT
GND[RF]
TSG_OFF[L]
RF_MIX[L]
SECAM_TU_ON[L]
TU_VIDEO
RF_VIDEO
VPS_VIDEO
DEMOD[L]
DEMOD[R]
FROM/TO TUNER (Page 4-23,24)
B1401
B1404 OPEN
B1403 OPEN
B1402
R1408 SHORT
R1409 10k
L1403 SHORT
CN1403
13 H.P[R] 0
12 H.P.GND 0
11 H.P[L] 0
10 A.AL5V 5.1
9 REC LEVEL 3.0
8 GND[RF] 0
7 GND[RF] 0
6 F.AUDIO[R] 0
5 AUDIO GND 0
4 F.AUDIO[L] 0
3 GND[RF] 0
2 FRONT VIDEO 0
1 R.PAUSE 0
FROM/TO SW/JACK CN4 (Page 4-34)
R1411 56
R1410 20
R.PAUSE
AV2/CH+
VPS_V.SWD
RAE
CH+_DATA
CH+_CLK
P.MUTE[L]
EE[L]
SCR[H]
AUX[L]
PERI2[L]
FRONT[L]
FROM/TO SYSCON (Page 4-20)
0 0.6 0 0 0 0 0 0 0 6.0 1.8 0 0 0 1.0
0 0 5.1(0) 0 0 0 0(5.1) 0 12.2 5.1 0 0 0 12.2 -10.0 0 0 0
B201 OPEN
L1951 SHORT
R1951 33k
R1953 1k
R1954 68k
C1951 4.7/25
R1956 SHORT
R1957 SHORT
C1952 4.7/25
R1952 22K
R1955 10k
C1953 0.01
C1954 OPEN
B1951 OPEN
Q1951 2SA1576 (QRS)
Q1952 2SA1576 (QRS)
R1412 220
C1401 22/25
R1401 6.8k
R1403 1k
R1404 22k
C1402 22/25
C1405 33P
R1406 1k
R1407 220
L1401 1μ
R1402 5.6k
R1405 3.9k
C1403 0.01
C1404 10/16
Q1401 2SA1576 (QRS)
Q1402 2SA1576 (QRS)
5
4
3
2
1
A
B
C
D
E
F
G
H

WAVEFORMS

MAIN BOARD

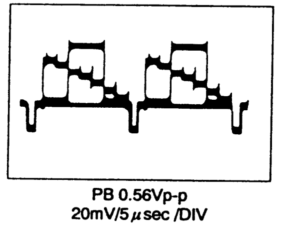
— VIDEO / N.AUDIO —

WF1 IC1-61



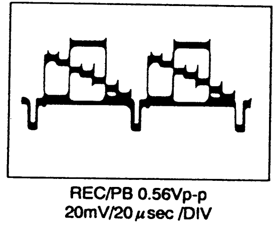
REC 0.72Vp-p
20mV/20μsec /DIV

WF2 IC1-66



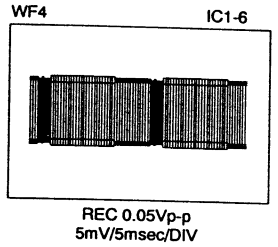
PB 0.56Vp-p
20mV/5μsec /DIV

WF3 IC1-70



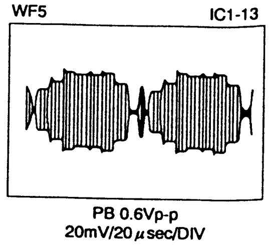
REC/PB 0.56Vp-p
20mV/20μsec /DIV

WF4 IC1-6



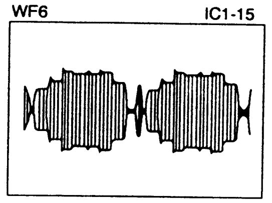
REC 0.05Vp-p
5mV/5msec/DIV

WF5 IC1-13



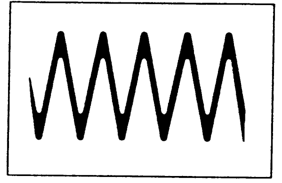
PB 0.6Vp-p
20mV/20μsec/DIV

WF6 IC1-15



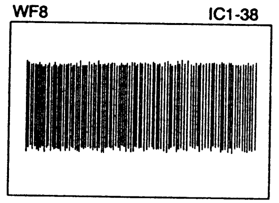
REC 0.4Vp-p
20mV/20μsec/DIV

WF7 IC1-34



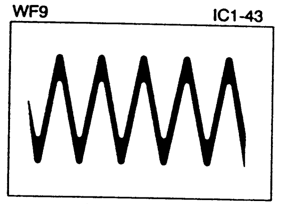
REC 1.0Vp-p
50mV/1msec/DIV

WF8 IC1-38



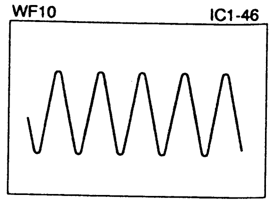
PB 0.005Vp-p
0.5mV/5msec/DIV

WF9 IC1-43



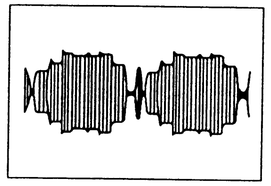
REC 0.12Vp-p
5mV/1msec/DIV

WF10 IC1-46



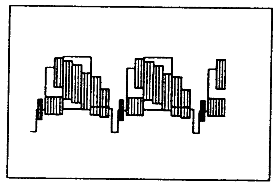
PB 0.56Vp-p
20mV/1msec/DIV

WF11 IC1-55



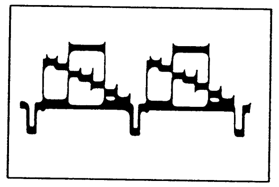
PB 0.56Vp-p
20mV/20μsec/DIV

WF12 IC1-57



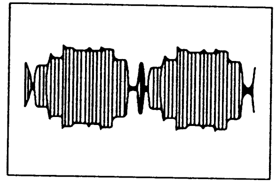
REC/PB 2.2Vp-p
0.1V/20μsec/DIV

WF13 IC2-5



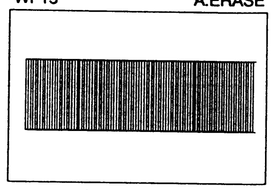
PB 0.48Vp-p
20mV/20μsec/DIV

WF14 IC2-8



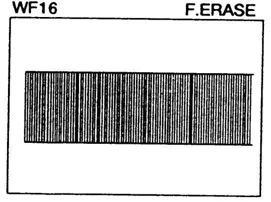
PB 0.4Vp-p
20mV/20μsec/DIV

WF15 TP333 A.ERASE



REC 37.0Vp-p
1V/1msec/DIV

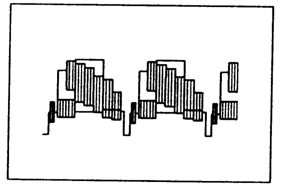
WF16 TP334 F.ERASE



REC 40.0Vp-p
1V/1msec/DIV

— ON SCREEN —

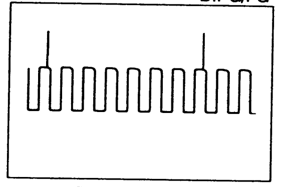
WF1 IC 1301-13,15



REC/PB 2.2Vp-p
0.1V/20μsec/DIV

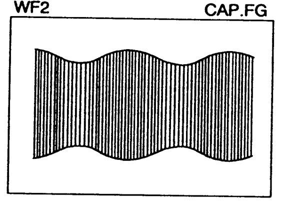
— SERVO —

WF1 IC 1101-22 D.PG/FG



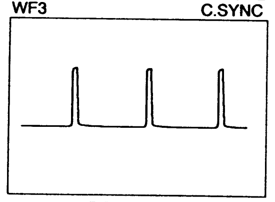
REC/PB 4.2Vp-p
0.1V/5msec/DIV

WF2 IC 1101-17 CAP.FG



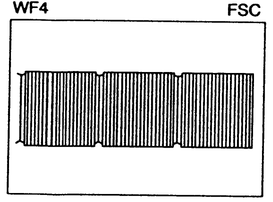
REC/PB 2.0Vp-p
0.1V/10msec/DIV

WF3 IC 1101-2 C.SYNC



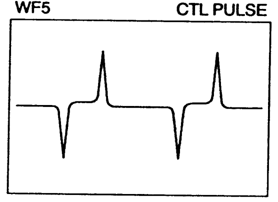
REC 5.0Vp-p
0.2V/20μsec/DIV

WF4 IC 1101-3 FSC



REC/PB 0.44Vp-p
20mV/5msec/DIV

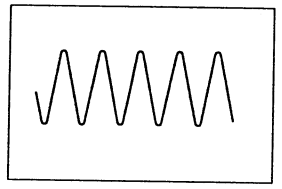
WF5 TP1101 CTL PULSE



PB 3.0Vp-p
0.1V/10msec/DIV

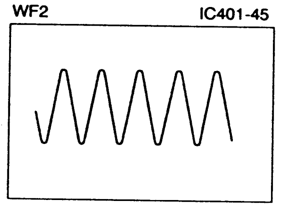
— FMA —

WF1 IC401-41



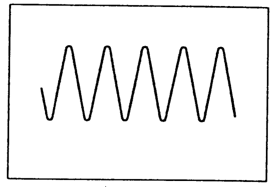
PB 0.12Vp-p
5mV/1msec/DIV

WF2 IC401-45



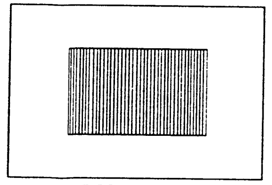
REC/PB 1.1Vp-p
50mV/1msec/DIV

WF3 IC401-1



PB 0.22Vp-p
10mV/1msec/DIV

WF4 IC401-13

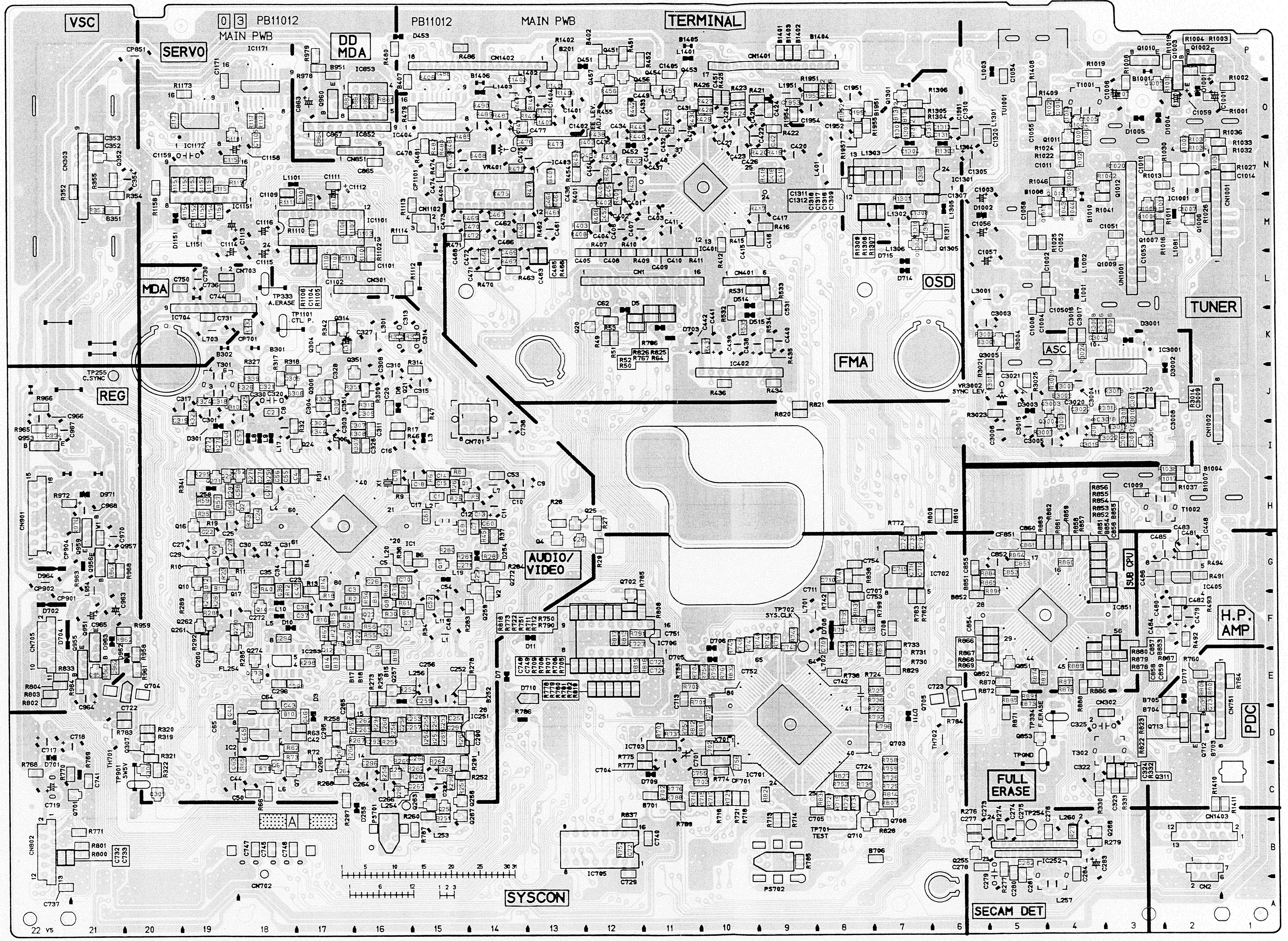


REC 0.64Vp-p
20mV/1msec/DIV

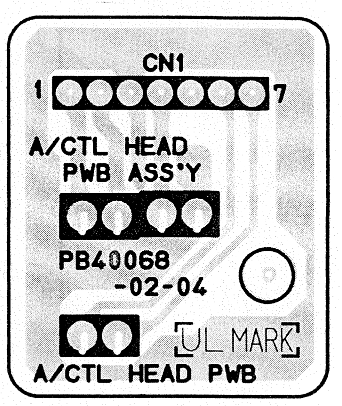
COMPONENT PARTS LOCATION GUIDE MAIN PWB

REF.NO.	LOCATION		
CAPACITOR			
C1	B	C	15H
C2	B	C	18J
C3	B	C	17G
C4	B	C	17I
C5	B	C	16G
C6	A	D	18I
C7	B	C	14H
C8	B	C	15H
C9	A	D	13H
C10	B	C	14H
C11	A	D	14H
C12	A	D	14H
C13	B	C	14H
C14	B	C	15I
C15	B	C	15H
C16	A	D	16I
C17	A	D	16I
C18	B	C	15H
C19	B	C	16I
C20	B	C	16J
C21	B	C	18H
C22	B	C	19H
C23	A	D	17F
C24	B	C	18H
C25	A	D	19H
C26	B	C	16G
C27	A	D	19G
C28	B	C	19G
C29	A	D	19G
C30	A	D	18G
C31	B	C	18G
C32	A	D	18G
C34	B	C	18G
C35	B	C	18G
C36	B	C	18G
C37	B	C	17F
C38	B	C	17F
C41	B	C	19D
C42	B	C	17D
C43	B	C	18E
C44	A	D	18C
C45	B	C	18D
C46	B	C	17D
C47	B	C	17G
C48	B	C	15F
C50	B	C	18C
C52	B	C	15F
C53	B	C	14I
C54	A	D	15G
C55	B	C	18I
C56	B	C	18I
C57	B	C	18I
C58	B	C	18H
C60	B	C	14H
C61	B	C	15H
C62	B	C	12L
C63	B	C	19D
C64	B	C	18E
C65	B	C	19D
C69	B	C	16G
C70	B	C	16G
C251	B	C	15D
C252	A	D	15E
C253	B	C	15D
C254	B	C	15D
C255	B	C	15D
C256	A	D	15E
C257	B	C	15D
C258	B	C	16D
C259	B	C	15E
C260	B	C	16D
C262	B	C	16D
C263	B	C	16D
C264	A	D	16C
C265	B	C	17D
C266	A	D	16C
C267	B	C	15C
C268	B	C	15D
C269	B	C	15D
C270	B	C	18I
C271	B	C	15G
C272	A	D	19F
C273	A	D	6B
C274	A	D	5B
C275	B	C	5B
C276	B	C	4B
C277	B	C	6B
C278	B	C	6B
C279	A	D	5B
C280	B	C	5B
C281	B	C	5B
C282	B	C	5B
C283	A	D	4B
C284	B	C	4B
C290	B	C	14D
C291	B	C	15D
C292	A	D	15C
C294	B	C	18F
C295	B	C	17D
C296	B	C	16D
C297	B	C	19H
C298	B	C	18E
C299	B	C	18E
C301	A	D	19J
C302	B	C	17J
C303	A	D	17I
C304	B	C	17J
C305	B	C	17J
C306	A	D	17I
C307	B	C	16J
C308	A	D	16J
C309	B	C	16J
C310	A	D	16J
C311	B	C	16I
C313	A	D	16K
C314	A	D	15K
C315	A	D	15J
C317	A	D	19J
C318	B	C	19J
C319	B	C	19J
C320	A	D	18J
C321	B	C	18J
C322	A	D	4C
C323	B	C	3C
C324	B	C	3C
C325	A	D	3D
C326	B	C	16I
C327	A	D	17K
C328	B	C	17J
C330	A	D	18J
C351	A	D	17J
C352	B	C	21N
C353	B	C	21O
C354	A	D	20N
C401	A	D	11N
C402	A	D	12M
C403	A	D	11M
C404	A	D	12M
C405	B	C	12M
C406	A	D	12M
C407	A	D	11M
C408	B	C	12M
C409	B	C	11M
C410	B	C	11M
C411	A	D	11M
C415	B	C	10M
C416	B	C	9M
C417	A	D	9M
C418	B	C	9N
C419	B	C	9N
C420	A	D	9N
C421	B	C	9O
C422	A	D	9O
C423	A	D	10N
C424	B	C	9O
C425	A	D	9O
C426	A	D	10O
C427	A	D	10O
C428	A	D	10O
C429	A	D	11O
C431	A	D	10O
C432	A	D	11N
C433	A	D	11O
C434	A	D	12O
C435	A	D	12N
C436	A	D	12N
C437	A	D	11N
C438	A	D	9K
C439	A	D	10K
C440	A	D	9K
C441	A	D	10K
C442	A	D	11K
C443	A	D	11N
C447	B	C	11O
C448	B	C	2G
C449	B	C	11O
C450	B	C	12N
C451	B	C	10O
C452	B	C	12M
C453	B	C	10O
C454	A	D	12N
C461	A	D	13M
C462	A	D	14M
C463	A	D	13M
C464	B	C	13M
C465	B	C	13L
C466	A	D	14M
C467	B	C	14M
C468	A	D	14M
C469	B	C	14M
C470	B	C	14M
C471	A	D	14M
C472	A	D	14M
C473	A	D	15M
C474	A	D	15N
C475	A	D	13N
C476	B	C	13N
C477	A	D	14O
C478	A	D	14O
C479	A	D	2F
C480	A	D	2F
C481	A	D	2G
C482	B	C	2F
C483	B	C	2G
C484	A	D	2F
C485	A	D	2G
C486	B	C	3G
C531	B	C	9L
C701	A	D	11D
C702	B	C	10D
C703	B	C	10C
C704	A	D	11D
C705	B	C	8C
C706	B	C	8F
C707	B	C	8G
C708	B	C	7F
C709	B	C	8F
C710	B	C	8G
C711	B	C	8G
C712	B	C	10D
C713	B	C	11E
C714	B	C	7G
C715	B	C	7G
C716	B	C	7G
C717	A	D	22D
C718	A	D	21D
C719	A	D	22C
C720	B	C	7G
C721	B	C	12B
C722	B	C	20D
C723	B	C	6E
C724	B	C	8C
C725	B	C	11E
C726	B	C	11E
C727	B	C	12F
C729	B	C	12B
C730	A	D	19L
C731	B	C	19K
C732	B	C	22B
C733	B	C	21B
C734	B	C	2E
C735	B	C	2E
C736	B	C	19L
C737	B	C	22A
C738	A	D	14I
C739	B	C	7G
C740	B	C	11B
C741	B	C	21C
C742	A	D	10D
C743	B	C	9F
C744	B	C	19L
C745	B	C	18B
C746	B	C	18B
C747	B	C	18B
C748	B	C	13E
C749	B	C	13E
C750	B	C	19L
C751	B	C	11F
C752	A	D	10D
C753	B	C	8F
C754	B	C	8G
C755	B	C	11C
C756	B	C	10D
C851	B	C	5G
C852	A	D	5G
C853	B	C	5G
C854	B	C	6F
C855	B	C	6G
C856	B	C	3F
C857	B	C	3F
C858	B	C	3E
C859	B	C	3E
C860	B	C	5H
C861	B	C	5G
C862	B	C	16O
C863	A	D	17O
C864	B	C	17O
C865	B	C	16N
C866	B	C	16O
C867	B	C	17O
C962	B	C	21E
C963	A	D	21F
C964	A	D	21E
C965	A	D	21F
C966	A	D	22J
C967	A	D	22I
C968	A	D	21H
C970	A	D	21G
C1001	A	D	1O
C1002	B	C	4L
C1003	A	D	5M
C1004	B	C	5L
C1005	B	C	4O
C1006	A	D	3O
C1007	B	C	2M
C1008	B	C	5L
C1009	B	C	3H
C1010	B	C	3N
C1011	B	C	4N
C1012	B	C	4O
C1013	B	C	4O
C1014	B	C	1N
C1050	B	C	4L
C1051	B	C	3M
C1052	B	C	5M
C1053	B	C	3L
C1054	B	C	5P
C1055	B	C	5O
C1056	A	D	5M
C1057	A	D	5L
C1058	B	C	5M
C1059	A	D	2O
C1101	B	C	16L
C1102	B	C	17L
C1103	B	C	17L
C1104	B	C	17L
C1105	B	C	18O
C1106	B	C	17M
C1107	B	C	17N
C1108	B	C	17M
C1109	B	C	18N
C1110	B	C	17L
C1111	B	C	17N
C1112	A	D	17N
C1113	A	D	19M
C1114	A	D	19M
C1115	A	D	18M
C1116	A	D	18M
C1151	B	C	19N
C1152	B	C	19N
C1153	B	C	19M
C1154	B	C	19M
C1155	B	C	19M
C1157	B	C	19N
C1158	A	D	18N
C1159	A	D	19N
C1171	B	C	19P
C1172	B	C	20O
C1301	A	D	6O
C1304	B	C	7N
C1305	A	D	6N
C1306	B	C	7N
C1307	B	C	6M
C1308	B	C	7M
C1309	B	C	7N
C1310	B	C	6O
C1311	B	C	8N
C1312	B	C	8N
C1313	B	C	6O
C1314	B	C	6O
C1315	B	C	6O
C1316	B	C	7N
C1317	B	C	7N
C1318	B	C	7N
C1320	B	C	5O
C1401	A	D	13O
C1402	A	D	13O
C1403	B	C	14P
C1404	A	D	13O
C1405	B	C	11P
C1951	A	D	8O
C1952	A	D	8O
C1953	B	C	9O
C1954	A	D	9O
C3003	A	D	5K
C3004	A	D	4J
C3005	A	D	4I
C3006	A	D	5I
C3007	B	C	3J
C3008	B	C	2J
C3009	B	C	3J
C3010	B	C	3J
C3011	B	C	3J
C3012	B	C	3I
C3013	B	C	3I
C3014	B	C	4K
C3015	A	D	5I
C3016	B	C	4K
C3017	B	C	4K
C3018	B	C	4J
C3019	B	C	4I
C3020	A	D	4I
C3021	A	D	5J
C3022	B	C	4J
CONNECTOR			
CN1	A	D	12L
CN2	A	D	2B
CN301	A	D	17L
CN302	A	D	3D
CN303	A	D	21M
CN401	A	D	10L
CN701	A	D	15J
CN702	A	D	18B
CN703	A	D	19L
CN705	A	D	22F
CN751	A	D	1E
CN802	A	D	22C
CN851	A	D	17N
CN901	A	D	22G
CN1001	A	D	1M
CN1002	A	D	1I
CN1102	A	D	15M
CN1401	A	D	8P
CN1402	A	D	13P
CN1403	A	D	1B
CIRCUIT PROTECTOR			
CP701	A	D	18K
CP851	A	D	20P
CP901	A	D	21G
CP902	A	D	22G
CP904	A	D	21H
CP1101	A	D	15N
DIODE			
D3	A	D	17D
D5	A	D	12L
D7	A	D	14E
D8	A	D	16J
D10	A	D	17F
D11	A	D	14F
D254	A	D	14G
D255	A	D	16C
D301	A	D	19J
D451	A	D	13P
D452	A	D	11N
D453	A	D	16P
D514	A	D	9L
D515	A	D	9K
D701	A	D	22D
D702	A	D	21F
D703	A	D	11K
D704	A	D	21F
D705	A	D	10E
D706	A	D	10F
D708	A	D	8F
D709	A	D	11C
D710	A	D	13E
D711	A	D	7D
D714	A	D	7L
D715	A	D	7L
D717	A	D	2D
D962	A	D	20E
D963	A	D	21F
D964	A	D	22G
D971	A	D	21H
D1001	A	D	2O
D1002	A	D	6M
D1004	A	D	2O
D1005	A	D	3O
D1151	A	D	20M
D3001	A	D	3K
D3002	A	D	2K
D3003	A	D	5J
IC			
IC1	B	C	17H
IC2	B	C	18D
IC251	A	D	15D
IC252	A	D	4B
IC253	B	C	18E
IC401	B	C	10N
IC402	A	D	9J
IC403	A	D	15N
IC404	B	C	15O
IC405	B	C	2G
IC701	B	C	9D
IC702	A	D	7G
IC703	A	D	11D
IC704	A	D	18L
IC705	A	D	12B
IC706	A	D	11E
IC851	B	C	5F
IC852	A	D	17O
IC853	A	D	16O
IC1001	B	C	2N
IC1101	A	D	18M
IC1151	A	D	18N
IC1171	B	C	18O
IC1172	B	C	19O
IC1301	A	D	6N
IC3001	B	C	3J
COIL			
L1	A	D	15F
L2	A	D	15H
L3	A	D	15I
L4	A	D	18H
L5	A	D	18F
L6	A	D	18C
L7	A	D	14H
L8	A	D	18I
L9	A	D	18I
L10	A	D	18F
L11	A	D	15F
L17	A	D	18I
L19	A	D	15G
L20	A	D	15G
L253	A	D	15B
L254	A	D	15C
L256	A	D	16E
L257	A	D	4A
L258	A	D	19H
L260	A	D	4B
L301	A	D	16K
L401	A	D	8N
L701	A	D	8F
L702	A	D	9E
L703	A	D	19K
L954	A	D	21G
L1001	A	D	4L
L1002	A	D	4L
L1003	A	D	5P
L1081	B	C	2M
L1101	A	D	17N
L1151	A	D	19M
L1301	A	D	6N
L1302	A	D	7M
L1303	A	D	7N
L1304	A	D	6N
L1305	A	D	6M
L1306	A	D	7M
L1401	A	D	10P
L1402	A	D	14O
L1403	A	D	14O
L1951	A	D	9O
L3001	A	D	5L
TRANSISTOR			
Q1	B	C	15H
Q2	B	C	18H
Q3	B	C	16F
Q4	B	C	13H
Q6	B	C	18C
Q7	B	C	18C
Q8	B	C	16F
Q9	B	C	19G
Q10	B	C	19G
Q12	B	C	17F
Q14	B	C	18F
Q15	B	C	15G
Q16	B	C	19H
Q17	B	C	19G
Q18	B	C	16F
Q19	B	C	17F
Q20	B	C	12K
Q21	B	C	15J
Q22	B	C	16F
Q23	B	C	16F
Q24	B	C	17I
Q25	B	C	13H
Q26	B	C	13G
Q251	B	C	15C
Q252	B	C	18I
Q253	B	C	19I
Q254	B	C	16C
Q255	B	C	6B
Q256	B	C	15C
Q257	B	C	16E
Q258	B	C	14G
Q259	B	C	14G
Q260	B	C	19E
Q261	B	C	19F
Q262	B	C	19F
Q263	B	C	15C
Q264	B	C	17C
Q265	B	C	17D
Q266	B	C	17D
Q267	B	C	15C
Q268	B	C	4B
Q269	B	C	16C
Q270	B	C	19F
Q271	B	C	19I
Q272	B	C	14G
Q273	B	C	18E
Q274	B	C	18E
Q304	B	C	17K
Q305	B	C	18J
Q306	B	C	17J
Q307	B	C	20D
Q308	B	C	20C
Q309	B	C	20C
Q310	B	C	19J
Q311	B	C	3C
Q314	B	C	17K
Q351	B	C	16J
Q352	B	C	21N
Q451	B	C	12P
Q452	B	C	12N
Q453	B	C	11O
Q454	B	C	11O
Q455	B	C	11O
Q456	B	C	12P
Q457	B	C	12P
Q701	B	C	21C
Q702	B	C	12F
Q703	B	C	7D
Q704	A	D	20E
Q705	A	D	6E
Q708	B	C	8C
Q710	B	C	8B
Q712	A	D	2D
Q713	B	C	2D
Q851	B	C	5E
Q852	B	C	5E
Q853	B	C	5D
Q951	A	D	21F
Q952	B	C	21E
Q953	A	D	22I
Q954	B	C	22I
Q955	A	D	21E
Q956	A	D	21G
Q957	B	C	21G
Q959	A	D	21G
Q960	A	D	17O
Q1002	A	D	2P
Q1003	A	D	2O
Q1004	B	C	4O
Q1005	B	C	3O
Q1006	B	C	2M
Q1007	B	C	3M
Q1008	B	C	3M
Q1009	B	C	3L
Q1010	A	D	3P
Q1011	B	C	4O
Q1012	B	C	3N
Q1013	B	C	4M
Q1014	B	C	4N
Q1015	B	C	4N
Q1101	B	C	19O
Q1301	B	C	7O
Q1302	B	C	7O
Q1303	B	C	7M
Q1304	B	C	7M
Q1305	B	C	6M
Q1401	B	C	14O
Q1402	B	C	14O
Q1951	B	C	8O
Q1952	B	C	8O
Q3003	B	C	4J
Q3004	B	C	4J
Q3005	B	C	5K
Q3006	B	C	3I
Q3008	B	C	4I
RESISTOR			
R1	B	C	17F
R2	B	C	17F
R3	B	C	17F
R4	B	C	17F
R5	B	C	14H
R6	B	C	15I
R8	B	C	15I
R9	B	C	16H
R10	B	C	19G
R11	B	C	19G
R12	B	C	18G
R13	B	C	17G
R14	B	C	17G
R15	B	C	17F
R16	B	C	17F
R17	B	C	16I
R18	B	C	17G
R19	B	C	19H
R21	B	C	17F
R22	B	C	16F
R23	B	C	19G
R24	B	C	17F
R25	B	C	15H
R26	B	C	15H
R27	B	C	12H
R28	B	C	13H
R29	B	C	12G
R30	B	C	16F
R31	B	C	17I
R32	B	C	17J
R34	B	C	15F
R35	B	C	19H
R36	B	C	16G
R37	B	C	14H
R40	B	C	18G
R41	B	C	18G
R43	B	C	18H
R45	B	C	14H
R46	B	C	16I
R47	B	C	15J
R49	B	C	12K
R50	B	C	12K
R51	B	C	12K
R52	B	C	12K
R53	B	C	12K
R54	B	C	16F
R55	B	C	16F
R56	B	C	16F
R57	B	C	19H
R58	B	C	19H
R59	B	C	19H
R61	B	C	16F
R62	B	C	18D
R63	B	C	17D
R64	B	C	11K
R65	B	C	18D
R66	B	C	18C
R67	B	C	17F
R69	B	C	16G
R70	B	C	16G
R71	B	C	18C
R72	B	C	17D
R73	B	C	18D
R251	B	C	15C
R252	B	C	15C
R253	B	C	15D
R254	B	C	16E
R255	B	C	16E
R256	B	C	16D
R257	B	C	17D
R258	B	C	17D
R259	B	C	16D
R260	B	C	15C
R261	B	C	15C
R262	B	C	15C
R263	B	C	15C
R264	B	C	15D
R265	B	C	15D
R266	B	C	17D
R267	B	C	16D
R268	B	C	17C
R269	B	C	16D
R270	B	C	19I
R271	B	C	18I
R272	B	C	19I
R273	B	C	16E
R274	B	C	5B
R275	B	C	4B
R276	B	C	6B
R277	B	C	5B
R278	B	C	14E
R279	B	C	4B
R280	B	C	15G
R281	B	C	15G
R282	B	C	14G
R283	B	C	14F
R284	B	C	14G
R285	B	C	19F
R286	B	C	19F
R287	B	C	19F
R288	B	C	19F
R289	B	C	19F
R290	B	C	15C
R291	B	C	15D
R292	B	C	19F
R293	B	C	16D
R294	B	C	16D
R295	B	C	19I
R296	B	C	18F
R297	B	C	17C
R298	B	C	17E
R303	B	C	17J
R307	B	C	16I
R308	B	C	16I
R309	B	C	16J
R310	B	C	16J
R312	B	C	16K
R313	B	C	15K
R314	B	C	15J
R316	B	C	17K
R317	B	C	18J
R318	B	C	18K
R319	B	C	20D
R320	B	C	20D
R321	B	C	20D
R322	B	C	20C
R323	B	C	19J
R324	B	C	19J
R325	B	C	18J
R326	B	C	18J
R327	B	C	18J
R330	B	C	4C
R331	B	C	3C
R332	B	C	3C
R339	B	C	18J
R340	B	C	19I
R341	B	C	19I
R342	B	C	17K
R344	B	C	17I
R351	B	C	16J
R352	B	C	21N
R353	B	C	21M
R354	B	C	21N
R355	B	C	21N
R401	B	C	12N
R402	B	C	12M
R403	B	C	12M
R404	B	C	12N
R405	B	C	12N
R406	B	C	12M
R407	B	C	12M
R408	B	C	13M
R409	B	C	11M
R410	B	C	12M
R411	B	C	11M
R412	B	C	10M
R415	B	C	10M
R416	B	C	9M
R417	B	C	9M
R418	B	C	9N
R419	B	C	9N
R420	B	C	9N
R421	B	C	9O
R422	B	C	9O
R423	B	C	10O
R424	B	C	10O
R425	B	C	10O
R426	B	C	10O
R427	B	C	10O
R428	B	C	10O
R429	B	C	10O
R430	B	C	11O
R432	B	C	12N
R433	B	C	12N
R434	B	C	9J
R435	B	C	9K
R436	B	C	10J
R437	B	C	10K
R438	B	C	12O
R440	B	C	12O
R441	B	C	12O
R442	B	C	12O
R443	B	C	11O
R451	B	C	12P
R452	B	C	11P
R453	B	C	13N
R454	B	C	13N
R455	B	C	12O
R456	B	C	12O
R457	B	C	12N
R458	B	C	12N
R461	B	C	13M
R462	B	C	13M
R463	B	C	14L
R464	B	C	13M
R465	B	C	14M
R466	B	C	13L
R467	B	C	14L
R468	B	C	14L
R469	B	C	14M
R470	B	C	14L
R471	B	C	15M
R472	B	C	14M
R473	B	C	15N
R474	B	C	15N
R475	B	C	14N
R476	B	C	14N
R477	B	C	13N
R478	B	C	13N
R479	B	C	15O
R480	B	C	16P
R481	B	C	15N
R482	B	C	15N
R483	B	C	15N
R484	B	C	15N
R485	B	C	15O
R486	B	C	15P
R487	B	C	14O
R488	B	C	15P
R489	B	C	14O
R490	B	C	14O
R491	B	C	2G
R492	B	C	2F
R493	B	C	2F
R494	B	C	2G
R531	B	C	10L
R532	B	C	10K
R533	B	C	9L
R534	B	C	9L
R535	B	C	10K
R701	B	C	11E
R702	B	C	11D
R703	B	C	11E
R704	B	C	11E
R705	B	C	12E
R706	B	C	12E
R707	B	C	12E
R708	B	C	12E
R709	B	C	12E
R710	B	C	11C
R711	B	C	12F
R712	B	C	12F
R713	B	C	9C
R714	B	C	9C
R715	B	C	10C
R716	B	C	10C
R717	B	C	10C
R718	B	C	10C
R719	B	C	8C
R720	B	C	8C
R721	B	C	10C
R722	B	C	12F
R723	B	C	7D
R724	B	C	7E
R725	B	C	7C
R726	B	C	7C
R727	B	C	7E
R728	B	C	8C
R729	B	C	10C
R730	B	C	7E
R731	B	C	7E
R732	B	C	18K
R733	B	C	7F
R734	B	C	8C
R735	B	C	8C
R736	B	C	7E
R737	B	C	11D
R738	B	C	8E
R739	B	C	8F
R740	B	C	8G
R741	B	C	8F
R742	B	C	8F
R743	B	C	8F
R744	B	C	9F
R745	B	C	9F
R746	B	C	10F
R747	B	C	10F
R748	B	C	9F
R749	B	C	10F
R750	B	C	12F
R751	B	C	12F
R752	B	C	12B
R753	B	C	8C
R754	B	C	10E
R755	B	C	11E
R756	B	C	10E
R757	B	C	11D
R758	B	C	7D
R759	B	C	7C
R760	B	C	2E
R761	B	C	10E
R762	B	C	7F
R763	B	C	7F
R764	B	C	1E
R765	B	C	12F
R766	A	D	11K
R767	B	C	11K
R768	B	C	22C
R769	A	D	21D
R770	B	C	21C
R771	B	C	21B
R772	B	C	7H
R773	B	C	13F
R774	B	C	10C
R775	B	C	11D
R776	B	C	11C
R777	B	C	11D
R778	B	C	12E
R779	B	C	12E
R780	B	C	12E
R781	B	C	12E
R782	B	C	12E
R783	B	C	20D
R784	B	C	6D
R785	B	C	9B
R786	A	D	13D
R787	B	C	15B
R788	B	C	11C
R789	B	C	11C
R790	B	C	12F
R791	B	C	12F
R792	B	C	7D
R793	B	C	7G
R794	B	C	8F
R795	B	C	8F
R796	B	C	7D
R797	B	C	9F
R798	B	C	8F
R799	B	C	8F
R800	B	C	21B
R801	B	C	21B
R802	B	C	22E
R803	B	C	22E
R804	B	C	22E
R805	B	C	2E
R806	B	C	2E
R807	B	C	7C
R808	B	C	12F
R809	B	C	6H
R810	B	C	6H
R811	B	C	10D
R812	B	C	11D
R813	B	C	12F
R814	B	C	7C
R815	B	C	12E
R816	B	C	11E
R817	B	C	12F
R818	B	C	13F
R819	B	C	12E
R820	B	C	9J
R821	B	C	9J
R822	B	C	2D
R823	B	C	2D
R824	B	C	9C
R825	B	C	11L
R826	B	C	11L
R827	B	C	8C
R828	B	C	7B
R829	B	C	7E
R830	B	C	7F
R831	B	C	8F
R832	B	C	10E
R833	B	C	22E
R834	B	C	8C
R835	B	C	8F
R836	B	C	8G
R837	B	C	12B
R851	B	C	4F
R852	B	C	4G
R853	B	C	4G
R854	B	C	4G
R855	B	C	4G
R856	B	C	4G
R857	B	C	4G
R858	B	C	4G
R859	B	C	4G
R860	B	C	4G
R861	B	C	4G
R862	B	C	4G
R863	B	C	5G
R864	B	C	5G
R865	B	C	5G
R866	B	C	5F
R867	B	C	5F
R868	B	C	5F
R869	B	C	5E
R870	B	C	5E
R871	B	C	5D
R872	B	C	5E
R873	B	C	5E
R874	B	C	5E
R875	B	C	5E
R876	B	C	4E
R877	B	C	4E
R878	B	C	4E
R879	B	C	4E
R880	B	C	4F
R881	B	C	16O
R882	B	C	16O
R883	B	C	17O
R884	B	C	5G
R885	B	C	5E
R886	B	C	4E
R887	B	C	3E
R888	B	C	4E
R889	B	C	4E
R890	B	C	5G
R891	B	C	5E
R958	B	C	20E
R959	B	C	20F
R960	B	C	21E
R961	B	C	20E
R962	B	C	20F
R963	A	D	21G
R964	B	C	21E
R965	B	C	22I
R966	B	C	22J
R967	B	C	21G
R968	B	C	21G
R972	B	C	21H
R976	B	C	21H
R978	B	C	17P
R979	B	C	17P
R1001	B	C	2O
R1002	B	C	1O
R1003	B	C	2P
R1004	B	C	2P
R1005	B	C	4O
R1006	B	C	4O
R1007	B	C	3O
R1008	B	C	3O
R1009	B	C	2O
R1010	B	C	2O
R1011	A	D	2M
R1012	B	C	2M
R1013	B	C	2N
R1016	B	C	2M
R1017	B	C	2H
R1018	B	C	2P
R1019	B	C	4P
R1020	B	C	3N
R1021	B	C	4N
R1022	B	C	4N
R1023	B	C	4O
R1024	B	C	4N
R1025	B	C	5M
R1026	B	C	2M
R1027	B	C	1N
R1030	B	C	2N
R1031	B	C	2N
R1032	B	C	1N
R1033	B	C	1N
R1034	B	C	2N
R1035	B	C	2N
R1036	B	C	2O
R1037	B	C	2H
R1038	B	C	2I
R1041	B	C	3M
R1042	B	C	3N
R1043	B	C	4M
R1044	B	C	4M
R1045	B	C	4N
R1046	B	C	4N
R1101	B	C	16M
R1102	B	C	16M
R1103	B	C	16M
R1104	B	C	17L
R1105	B	C	17L
R1106	B	C	17L
R1107	B	C	16M
R1108	B	C	17M
R1109	B	C	17M
R1110	B	C	17M
R1111	B	C	18M
R1112	B	C	15L
R1113	B	C	15M
R1114	B	C	16M
R1151	B	C	19M
R1152	B	C	19M
R1153	B	C	19N
R1154	B	C	19M
R1155	B	C	19N
R1156	B	C	20N
R1157	B	C	18N
R1158	B	C	19N
R1171	B	C	18O
R1172	B	C	18O
R1173	B	C	19O
R1301	B	C	7M
R1302	B	C	7O
R1303	B	C	6N
R1304	B	C	7O
R1305	B	C	7O
R1306	B	C	7O
R1307	B	C	7M
R1308	B	C	7M
R1309	B	C	8M
R1310	B	C	7M
R1311	B	C	6M
R1401	B	C	13P
R1402	B	C	13P
R1403	B	C	13O
R1404	B	C	13O
R1405	B	C	13O
R1406	B	C	13O
R1407	B	C	13O
R1408	B	C	5O
R1409	B	C	5O
R1410	B	C	2C
R1411	B	C	1C
R1951	B	C	8O
R1952	B	C	8O
R1953	B	C	8O
R1954	B	C	9O
R1955	B	C	8O
R1956	B	C	8O
R1957	B	C	8O
R3002	B	C	6K
R3004	B	C	5K
R3005	B	C	4J
R3006	B	C	3K
R3007	B	C	4I
R3008	B	C	4K
R3009	B	C	4J
R3012	B	C	3I
R3013	B	C	3J
R3014	B	C	3J
R3015	B	C	3J
R3016	B	C	3K
R3017	B	C	5J
R3021	B	C	5K
R3022	B	C	3I
R3023	B	C	5J
R3024	B	C	4K
R3025	B	C	5J
TEST POINT			
TP254	A	D	5B
TP255	A	D	21J
TP333	A	D	18L
TP334	A	D	4E
TP701	A	D	8C
TP702	A	D	9F
TP901	A	D	20C
TP1101	A	D	18K
TPGND	A	D	4D
OTHERS			
CF701	A	D	10D
CF851	A	D	5G
FL254	A	D	19F
PC039	A	D	21M
PS701	A	D	16B
PS702	A	D	9B
T301	A	D	19J
T302	A	D	3D
T1001	A	D	4O
T1002	A	D	3H
TH701	A	D	21D
TH702	A	D	6D
TU1001	A	D	5P
UN1001	A	D	3L
VR401	A	D	14N
VR3002	A	D	5J
X1	A	D	16I
X701	A	D	10D

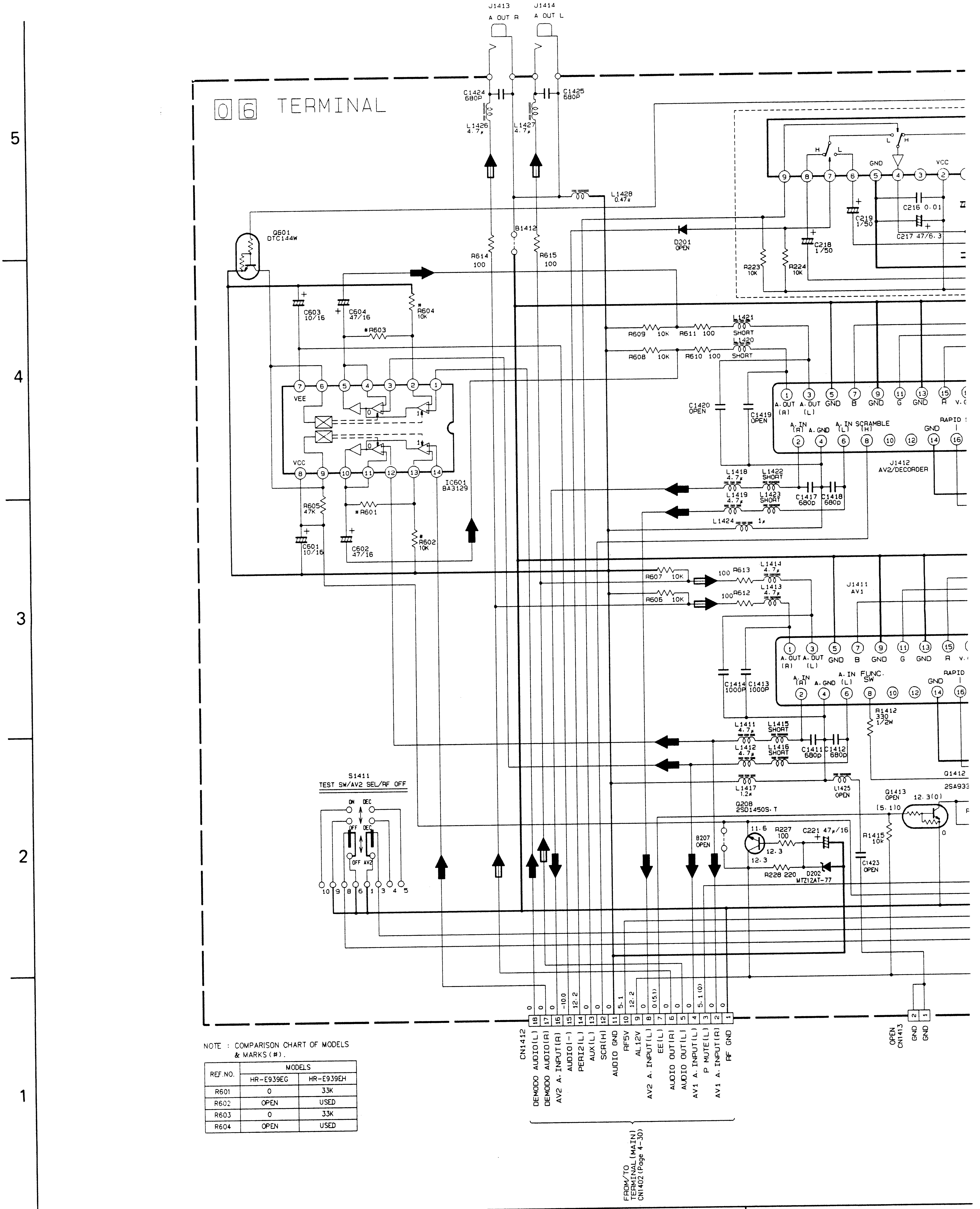
4.15 MAIN AND A/C HEAD CIRCUIT BOARDS


VSC
SERVO
0 3 PB11012
MAIN PWB
DD MDA
PB11012 MAIN PWB
TERMINAL
MDA
REG
AUDIO/ VIDEO
OSD
FMA
TUNER
ASC
SUB CPU
H.P. AMP
PDC
FULL ERASE
SECAM DET
SYSCON
A
TP255 C.SYNC
TP333 A.ERASE
TP1101 CTL P.
TP702 SYS.CLK
TP701 TEST
TP334 F.ERASE
VR3002 SYNC LEV.
22 VS 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
P O N M L K J I H G F E D C B A

-A/C HEAD-

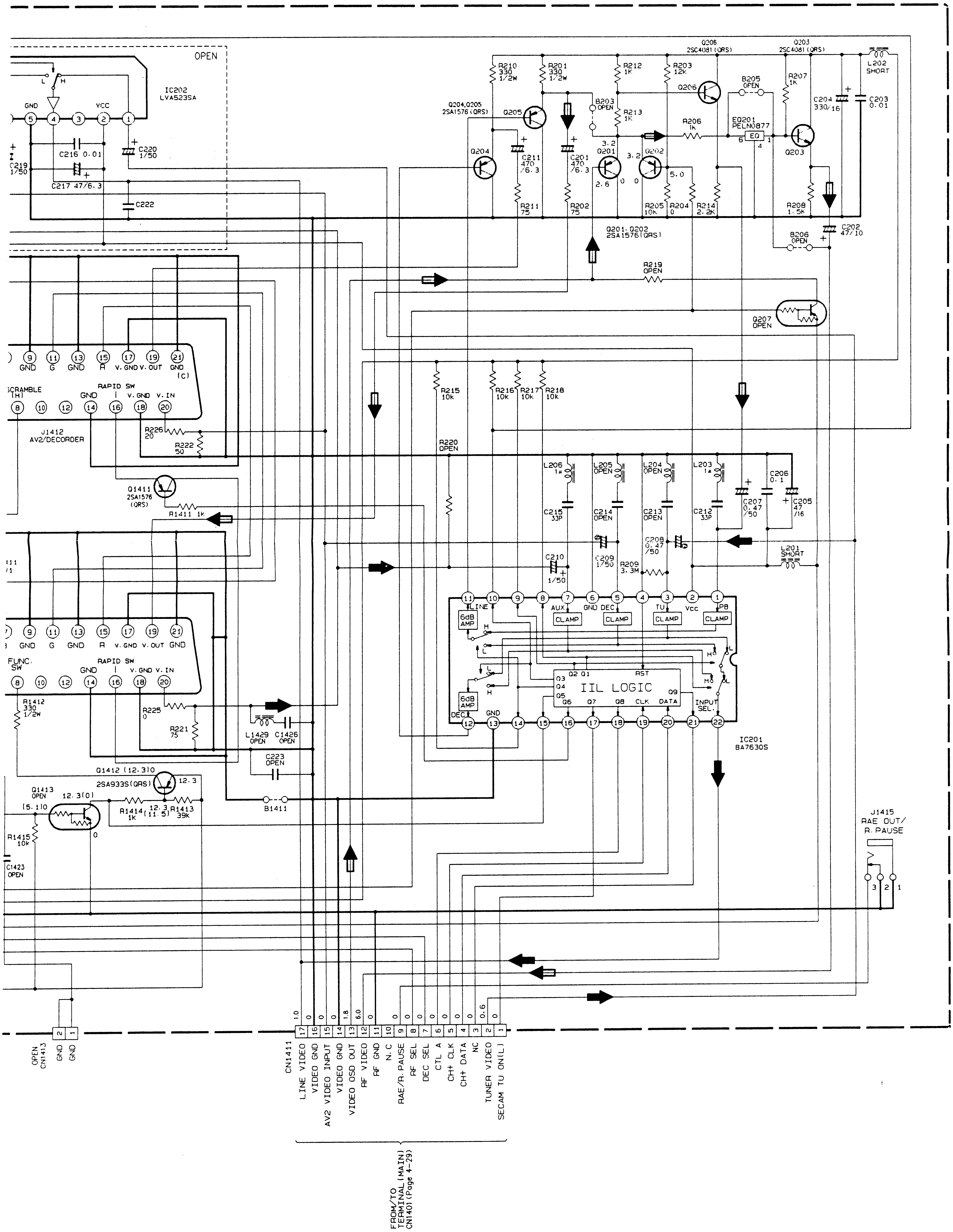

CN1
1
7
A/CTL HEAD
PWB ASS'Y
PB40068
-02-04
UL MARK
A/CTL HEAD PWB

4.16 TERMINAL SCHEMATIC DIAGRAM

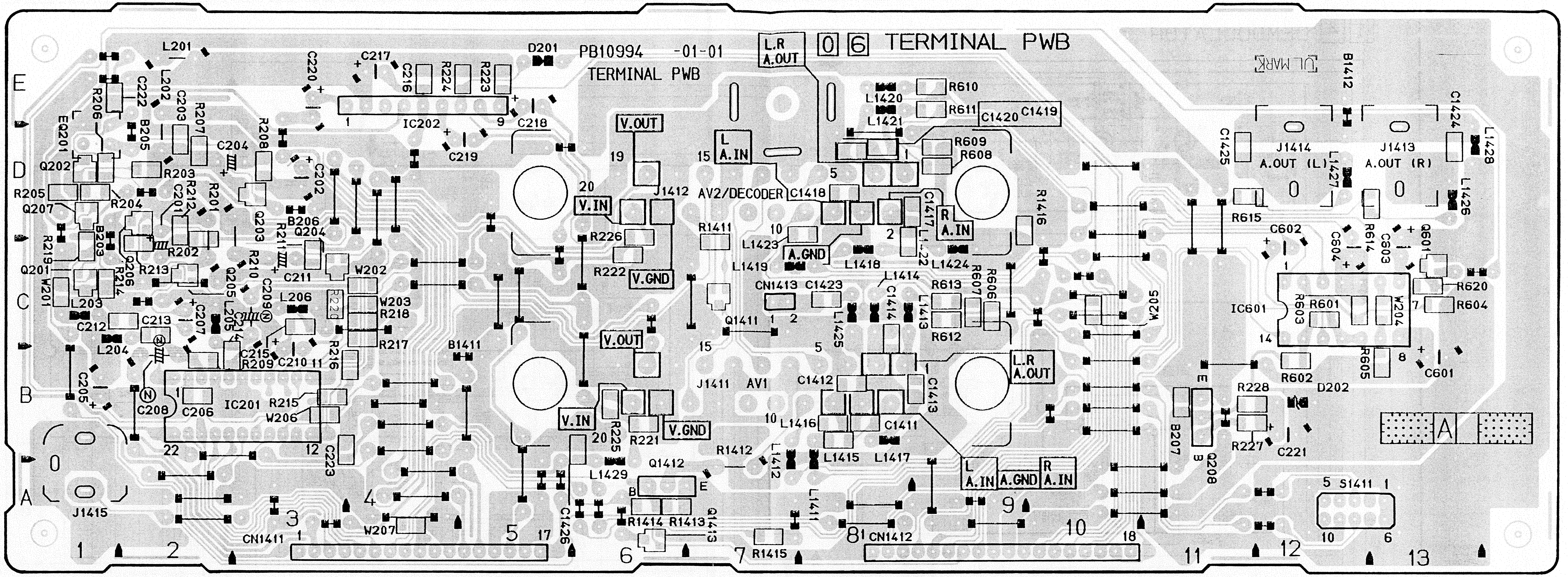

06 TERMINAL
J1413 A OUT R
J1414 A OUT L
C1424 680P
C1425 680P
L1426 4.7μ
L1427 4.7μ
L1428 0.47μ
B1412
R614 100
R615 100
Q601 DTC144W
D201 OPEN
C603 10/16
C604 47/16
R604 10K
R603
R609 10K
R611 100
R608 10K
R610 100
L1421 SHORT
L1420 SHORT
C216 0.01
C219 1/50
C217 47/6.3
C218 1/50
R223 10K
R224 10K
GND
VCC
H
L
VEE
VCC
IC601 BA3129
R605 47K
R601
R602 10K
C601 10/16
C602 47/16
C1420 OPEN
C1419 OPEN
A.OUT (R)
A.OUT (L)
GND
B
G
R
A.IN (R)
A.GND
A.IN (L)
SCRAMBLE (H)
RAPID
J1412 AV2/DECORDER
L1418 4.7μ
L1422 SHORT
L1419 4.7μ
L1423 SHORT
C1417 680p
C1418 680p
L1424 1μ
R607 10K
R606 10K
R613 100
R612 100
L1414 4.7μ
L1413 4.7μ
J1411 AV1
FUNC. SW
C1414 1000P
C1413 1000P
R1412 330 1/2W
L1411 4.7μ
L1415 SHORT
L1412 4.7μ
L1416 SHORT
C1411 680p
C1412 680p
L1417 1.2μ
L1425 OPEN
Q1412 2SA933
Q1413 OPEN
12.3(0)
(5.1)0
R1415 10K
C1423 OPEN
S1411 TEST SW/AV2 SEL/RF OFF
ON DEC
OFF DEC
OFF AV2
Q208 2SD1450S.T
B207 OPEN
11.6
R227 100
C221 47μ/16
12.3
12.3
R228 220
D202 MTZ12AT-77
CN1412
18 DEMODO AUDIO(L) 0
17 DEMODO AUDIO(R) 0
16 AV2 A.INPUT(R) 0
15 AUDIO(-) -10.0
14 PERI2(L) 12.2
13 AUX(L) 0
12 SCR(H) 0
11 AUDIO GND 0
10 RF5V 5.1
9 AL12V 12.2
8 AV2 A.INPUT(L) 0
7 EE(L) 0(5.1)
6 AUDIO OUT(R) 0
5 AUDIO OUT(L) 0
4 AV1 A.INPUT(L) 0
3 P MUTE(L) 5.1(0)
2 AV1 A.INPUT(R) 0
1 RF GND 0
FROM/TO TERMINAL(MAIN) CN1402 (Page 4-30)
OPEN CN1413
2 GND
1 GND
5
4
3
2
1
A
B
C
D

NOTE : COMPARISON CHART OF MODELS & MARKS (#).

REF.NO.	MODELS	
	HR-E939EG	HR-E939EH
R601	0	33K
R602	OPEN	USED
R603	0	33K
R604	OPEN	USED


OPEN
IC202
LVA523SA
L
H
GND
VCC
C216 0.01
C220 1/50
C219 1/50
C217 47/6.3
C222
R210 330 1/2W
R201 330 1/2W
Q204,Q205 2SA1576(QRS)
Q205
Q204
C211 470 /6.3
C201 470 /6.3
R211 75
R202 75
R212 1K
R213 1K
B203 OPEN
Q201
Q202
3.2
2.6
5.0
R203 12k
Q206 2SC4081(QRS)
Q206
R206 1k
B205 OPEN
EQ201 PELN0877
EQ
R205 10k
R204 0
R214 2.2K
Q201.Q202 2SA1576(QRS)
Q203 2SC4081(QRS)
R207 1K
Q203
C204 330/16
C203 0.01
L202 SHORT
R208 1.5k
C202 47/10
B206 OPEN
R219 OPEN
Q207 OPEN
GND G GND R V.GND V.OUT GND
(C)
SCRAMBLE (H)
RAPID SW
V.GND V.IN
J1412 AV2/DECORDER
R226 20
R222 50
R215 10k
R216 10k
R217 10k
R218 10k
R220 OPEN
L206 1µ
L205 OPEN
L204 OPEN
L203 1µ
C206 0.1
C207 0.47 /50
C205 47 /16
C215 33P
C214 OPEN
C213 OPEN
C212 33P
C208 0.47 /50
C209 1/50
C210 1/50
R209 3.3M
L201 SHORT
Q1411 2SA1576 (QRS)
R1411 1k
LINE
6dB AMP
AUX
GND
DEC
TU
VCC
PB
CLAMP
Q3 Q4 Q5 Q6 Q7 Q8
Q2 Q1
RST
IIL LOGIC
Q9
CLK
DATA
INPUT SEL.
IC201 BA7630S
FUNC. SW
R1412 330 1/2W
R225 0
R221 75
L1429 OPEN
C1426 OPEN
C223 OPEN
Q1412 (12.3)0
2SA933S(QRS)
12.3
Q1413 OPEN
12.3(0)
(5.1)0
R1414 1k
(11.5)
R1413 39k
R1415 10k
C1423 OPEN
B1411
J1415 RAE OUT/ R.PAUSE
1.0
0.6
6.0
1.8
CN1411
LINE VIDEO
VIDEO GND
AV2 VIDEO INPUT
VIDEO GND
VIDEO OSD OUT
RF VIDEO
RF GND
N.C
RAE/R.PAUSE
RF SEL
DEC SEL
CTL A
CH+ CLK
CH+ DATA
NC
TUNER VIDEO
SECAM TU ON(L)
OPEN CN1413
GND
GND
FROM/TO TERMINAL (MAIN) CN1401 (Page 4-29)

4.17 TERMINAL CIRCUIT BOARD


PB10994 -01-01
TERMINAL PWB
06 TERMINAL PWB
UL MARK
L.R A.OUT
V.OUT
V.IN
V.GND
L A.IN
R A.IN
A.GND
J1412 AV2/DECODER
J1411 AV1
J1414 A.OUT (L)
J1413 A.OUT (R)
IC201
IC202
IC601
CN1411
CN1412
CN1413
J1415
S1411
Q1411
Q1412
Q1413
Q201
Q202
Q203
Q204
Q205
Q206
Q207
Q208
Q601
D201
D202
EQ201
B1411
B1412
B203
B205
B206
B207
W201
W202
W203
W204
W205
W206
W207
L201
L202
L203
L204
L205
L206
C201
C202
C203
C204
C205
C206
C207
C208
C209
C210
C211
C212
C213
C215
C216
C217
C218
C219
C220
C221
C222
C223
C601
C602
C603
C604
C1411
C1412
C1413
C1414
C1417
C1418
C1419
C1420
C1423
C1424
C1425
C1426
R201
R202
R203
R204
R205
R206
R207
R208
R209
R210
R211
R212
R213
R214
R215
R216
R217
R218
R219
R221
R222
R225
R226
R227
R228
R223
R224
R601
R602
R603
R604
R605
R606
R607
R608
R609
R610
R611
R612
R613
R614
R615
R620
R1411
R1412
R1413
R1414
R1415
R1416
L1411
L1412
L1413
L1414
L1415
L1416
L1417
L1418
L1419
L1420
L1421
L1422
L1423
L1424
L1425
L1426
L1427
L1428
L1429
A
B
C
D
E
1
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7
8
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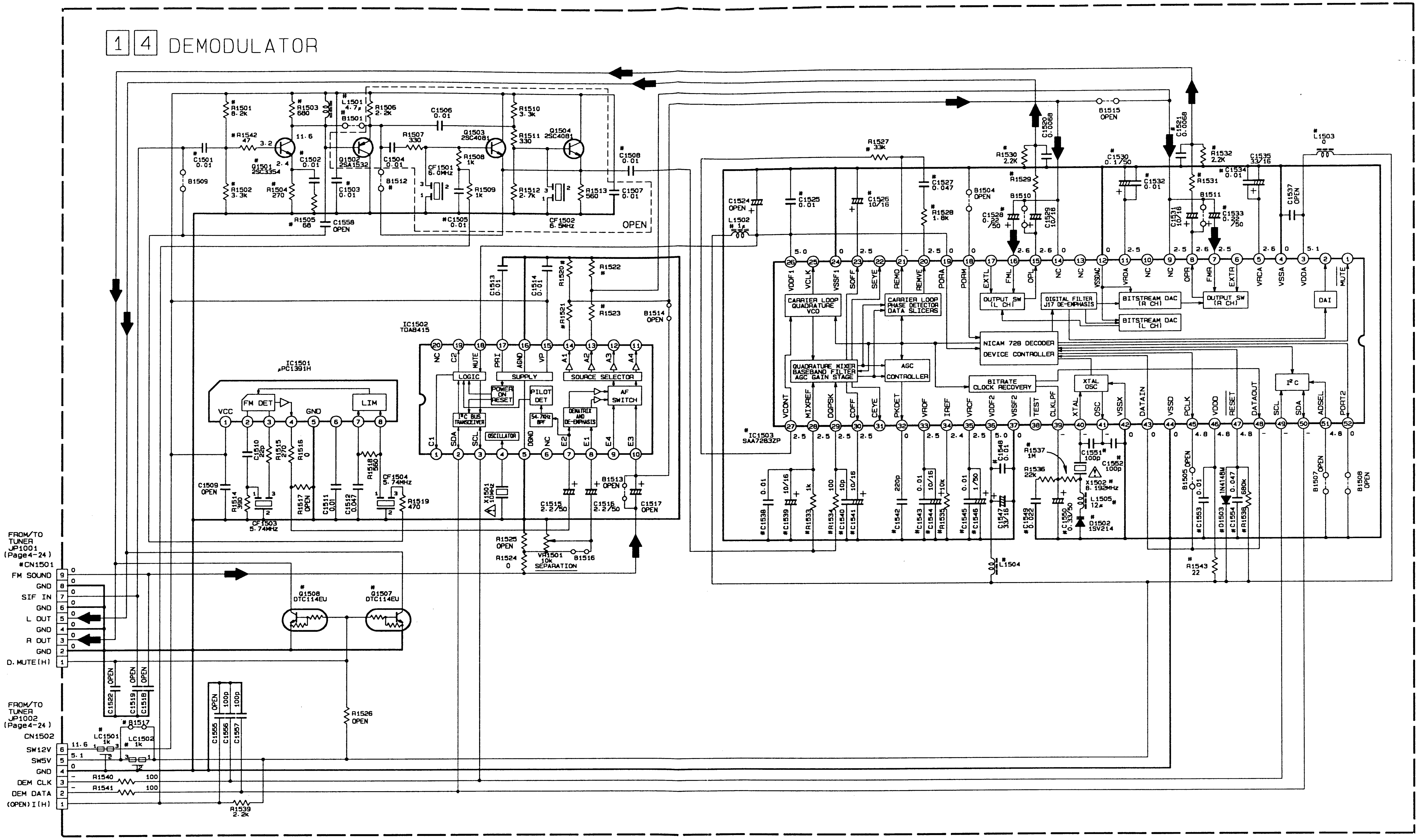
11
12
13

COMPONENT PARTS LOCATION GUIDE <TERMINAL PWB>

REF.No.	LOCATION		
CAPACITOR			
C201	A	D	2D
C202	A	D	3D
C203	B	C	2D
C204	A	D	2D
C205	A	D	1B
C206	B	C	2B
C207	A	D	2C
C208	A	D	2B
C209	A	D	3C
C210	A	D	3C
C211	A	D	3C
C212	B	C	2C
C213	B	C	2C
C214	B	C	3B
C215	B	C	3C
C216	B	C	4E
C217	A	D	4E
C218	A	D	5E
C219	A	D	5D
C220	A	D	3E
C221	A	D	12B
C222	B	C	2E
C223	B	C	4B
C601	A	D	13B
C602	A	D	12C
C603	A	D	13D
C604	A	D	12C
C1411	B	C	8B
C1412	B	C	8B
C1413	B	C	9B
C1414	B	C	8C
C1417	B	C	9D
C1418	B	C	8D
C1419	B	C	8D
C1420	B	C	8D
C1423	B	C	8C
C1424	B	C	13D
C1425	B	C	11D
C1426	B	C	6B
CONNECTOR			
CN1411	A	D	3A
CN1412	A	D	8A
CN1413	A	D	7C
DIODE			
D201	A	D	5E
D202	A	D	12B
IC			
IC201	A	D	2B
IC202	A	D	4E
IC601	A	D	12C
COIL			
L201	A	D	2E
L202	A	D	2E
L203	A	D	1C
L204	A	D	1C
L205	A	D	2C
L206	A	D	3C
L1411	A	D	8B
L1412	A	D	8B
L1413	A	D	9C
L1414	A	D	8C
L1415	B	C	8B
L1416	B	C	8B
L1417	A	D	9B
L1418	A	D	8C
L1419	A	D	7C
L1420	A	D	8E
L1421	A	D	8E
L1422	B	C	9C
L1423	B	C	8D
L1424	A	D	9C
L1425	A	D	8C
L1426	A	D	13D
L1427	A	D	12D
L1428	A	D	14D
L1429	A	D	6B
TRANSISTOR			
Q201	B	C	1C
Q202	B	C	1D
Q203	B	C	3D
Q204	B	C	3C
Q205	B	C	2C
Q206	B	C	2D
Q207	B	C	1D
Q208	A	D	11B
Q601	B	C	13C
Q1411	B	C	7C
Q1412	A	D	7A
Q1413	B	C	6A
RESISTOR			
R201	A	D	2C
R202	B	C	2C
R203	B	C	2D
R204	B	C	1D
R205	B	C	1D
R206	B	C	1D
R207	B	C	2D
R208	B	C	3D
R209	B	C	2B
R210	A	D	3C
R211	B	C	3C
R212	B	C	2D
R213	B	C	2C
R214	B	C	1C
R215	B	C	3B
R216	B	C	4B
R217	B	C	4C
R218	B	C	4C
R219	B	C	1C
R220	B	C	3C
R221	B	C	6B
R222	B	C	6C
R223	B	C	5E
R224	B	C	5E
R225	B	C	6B
R226	B	C	6D
R227	B	C	12B
R228	B	C	12B
R601	B	C	12C
R602	B	C	12B
R603	B	C	12C
R604	B	C	13C
R605	B	C	13B
R606	B	C	9C
R607	B	C	9C
R608	B	C	9D
R609	B	C	9D
R610	B	C	9E
R611	B	C	9E
R612	B	C	9C
R613	B	C	9C
R614	B	C	13D
R615	B	C	12D
R620	B	C	13C
R1411	B	C	7C
R1412	A	D	7A
R1413	B	C	6A
R1414	B	C	6A
R1415	B	C	7A
R1416	B	C	10D
OTHERS			
EQ201	A	D	1D
J1411	A	D	7B
J1412	A	D	7D
J1413	A	D	13D
J1414	A	D	12D
J1415	A	D	1B
S1411	A	D	12A

4.18 DEMODULATOR SCHEMATIC DIAGRAM


1 4 DEMODULATOR
FROM/TO TUNER JP1001 (Page4-24)
#CN1501
9 FM SOUND
8 GND
7 SIF IN
6 GND
5 L OUT
4 GND
3 R OUT
2 GND
1 D. MUTE(H)
FROM/TO TUNER JP1002 (Page4-24)
CN1502
6 SW12V
5 SW5V
4 GND
3 DEM CLK
2 DEM DATA
1 (OPEN) I(H)
# LC1501 1k
# LC1502 1k
# B1517
R1540 100
R1541 100
R1539 2.2k
C1522 OPEN
C1519 OPEN
C1518 OPEN
C1555 OPEN
C1556 100p
C1557 100p
# R1501 8.2k
# R1503 680
# L1501 4.7μ
# B1501
# R1506 2.2k
C1506 0.01
# R1542 47
# Q1501 2SC3354
# C1501 0.01
# C1502 0.01
Q1502 2SA1532
C1504 0.01
R1507 330
Q1503 2SC4081
R1508 1k
CF1501 6.0MHz
R1509 1k
# C1505 0.01
R1510 3.3k
R1511 330
Q1504 2SC4081
R1512 2.7k
CF1502 6.5MHz
R1513 560
C1507 0.01
# C1508 0.01
OPEN
B1509
# R1502 3.3k
# R1504 270
# R1505 68
C1558 OPEN
C1503 0.01
B1512
IC1501 μPC1391H
VCC
FM DET
GND
LIM
C1509 OPEN
R1514 390
C1510 22p
R1515 270
R1516 0
R1517 OPEN
C1511 0.01
C1512 0.047
R1518 560
CF1503 5.74MHz
CF1504 5.74MHz
R1519 470
IC1502 TDA8415
NC C2 MUTE PRI AGND VP A1 A2 A3 A4
LOGIC
SUPPLY
SOURCE SELECTOR
POWER ON RESET
PILOT DET
AF SWITCH
I²C BUS TRANSCEIVER
54.7KHz BPF
DEMATRIX AND DE-EMPHASIS
OSCILLATOR
C1 SDA SCL DGND NC E2 E1 E4 E3
C1513 0.01
C1514 0.01
R1520 #
# R1521
R1522 #
# R1523
B1514 OPEN
X1501 10MHz
C1515 2.2/50
C1516 2.2/50
B1513 OPEN
C1517 OPEN
R1525 OPEN
R1524 0
VR1501 10k SEPARATION
B1516
# Q1508 DTC114EU
# Q1507 DTC114EU
R1526 OPEN
# IC1503 SAA7283ZP
VDDF1 VCLK VSSF1 SOFF SEYE REMO REMVE PORA PORM EXTL FML OPL NC NC VSSDAC VRDA NC NC OPR FMR EXTR VRCA VSSA VDDA MUTE
CARRIER LOOP QUADRATURE VCO
CARRIER LOOP PHASE DETECTOR DATA SLICERS
OUTPUT SW (L CH)
DIGITAL FILTER J17 DE-EMPHASIS
BITSTREAM DAC (R CH)
BITSTREAM DAC (L CH)
OUTPUT SW (R CH)
DAI
NICAM 728 DECODER DEVICE CONTROLLER
QUADRATURE MIXER BASEBAND FILTER AGC GAIN STAGE
AGC CONTROLLER
BITRATE CLOCK RECOVERY
XTAL OSC
I²C
VCONT MIXREF DQPSK COFF CEYE PKDET VROF IREF VRCF VDDF2 VSSF2 TEST CLKLPF XTAL OSC VSSX DATAIN VSSD PCLK VDDD RESET DATAOUT SCL SDA ADSEL PORT2
# R1527 33k
# C1527 0.047
B1504 OPEN
# R1528 1.8k
C1524 OPEN
# C1525 0.01
# C1526 10/16
L1502 # 1μ
# R1530 2.2K
# R1529
B1510
# C1528 0.22/50
C1529 10/16
# C1520 0.0068
B1515 OPEN
# C1521 0.0068
# R1532 2.2K
# R1531
B1511
# C1530 0.1/50
# C1532 0.01
# C1531 10/16
# C1533 0.22/50
# C1534 0.01
C1535 33/16
C1537 OPEN
# L1503 0
# C1538 0.01
# C1539 10/16
# R1533 1k
# R1534 100
# C1540 10p
# C1541 10/16
# C1542 220p
# C1543 0.01
# C1544 10/16
# R1535 10k
# C1545 0.01
# C1546 1/50
C1547 33/16
# C1548 0.01
# C1549 0.022
# R1537 1M
R1536 22k
# C1550 0.33/50
C1551 # 100p
# C1552 100p
X1502 # 8.192MHz
L1505 # 12μ
# D1502 1SV214
# L1504
B1505 OPEN
# C1553 0.01
# D1503 1N4148M
# C1554 0.047
# R1538 680k
# R1543 22
B1507 OPEN
B1508 OPEN
5
4
3
2
1
A
B
C
D
E
F
G
H

NOTE : COMPARISON CHART OF MODELS & MARKS (#)

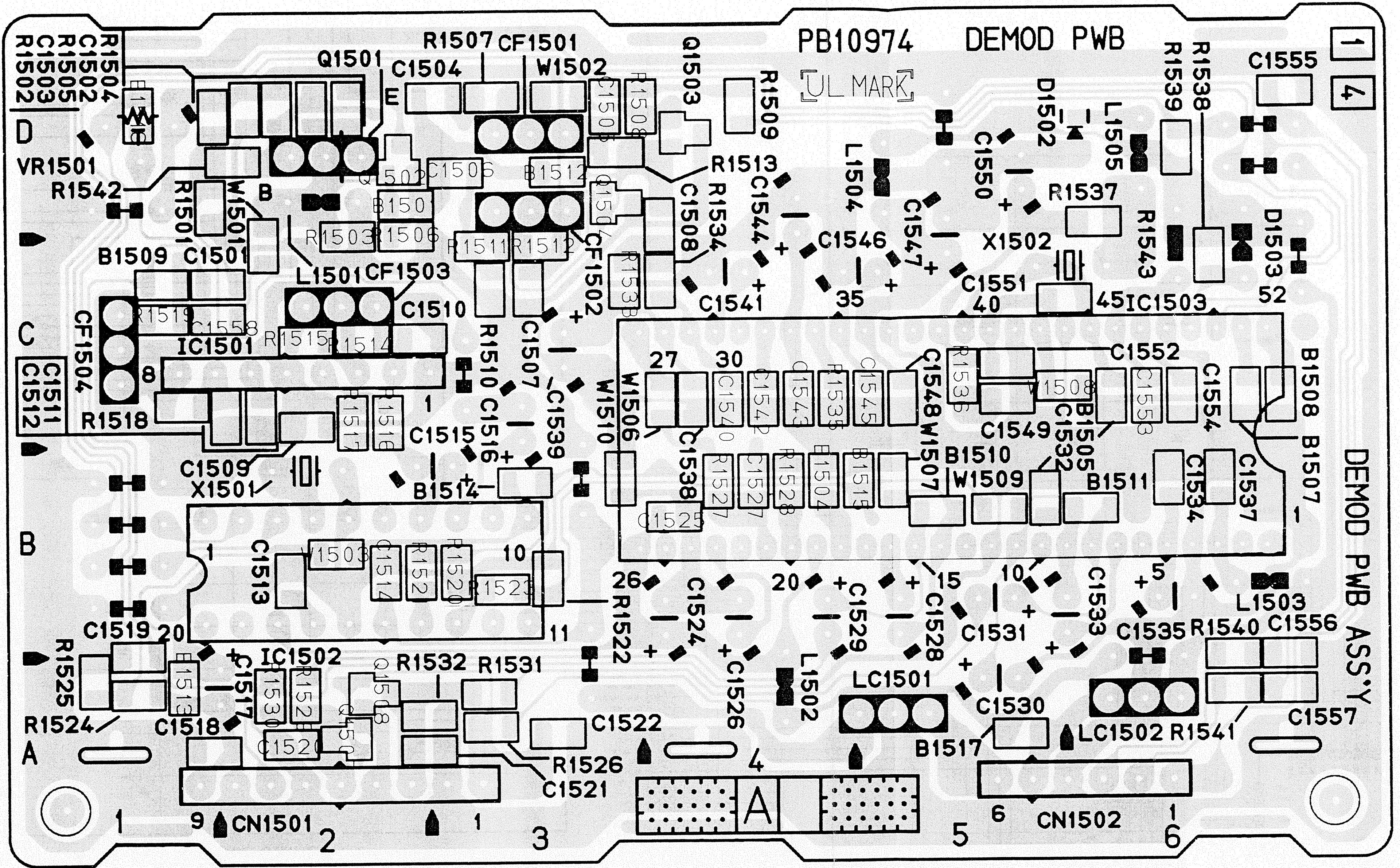
REF.No.	MODELS	
	HR-E939EG	HR-E939EH
IC1503 Q1501	OPEN	USED
Q1507,Q1508	USED	OPEN
D1502,D1503 R1501~R1505	OPEN	USED
R1520,R1522	3.9K	2.2K
R1521,R1523	1K	2.7K
R1527,R1528	OPEN	USED

REF.No.	MODELS	
	HR-E939EG	HR-E939EH
R1529,R1531	0	2.2K
R1530,R1532 R1533~R1538 R1542,R1543 C1501~C1503 C1508,C1520 C1521	OPEN	USED
C1522	USED	OPEN

RER.No.	MODELS	
	HR-E939EG	HR-E939EH
C1523~C1527 C1529~C1531 C1533~C1535 C1537~C1548 C1549~C1554 L1501,L1502,L1505	OPEN	USED
L1503,L1504	OPEN	SHORT
X1502	OPEN	USED

RER.No.	MODELS	
	HR-E939EG	HR-E939EH
B1501,B1504	OPEN	USED
B1510,B1511	USED	OPEN
B1512	OPEN	USED
B1517	USED	OPEN
LC1501	SHORT	USED
LC1502	OPEN	USED
CN1501	1-9	2-9

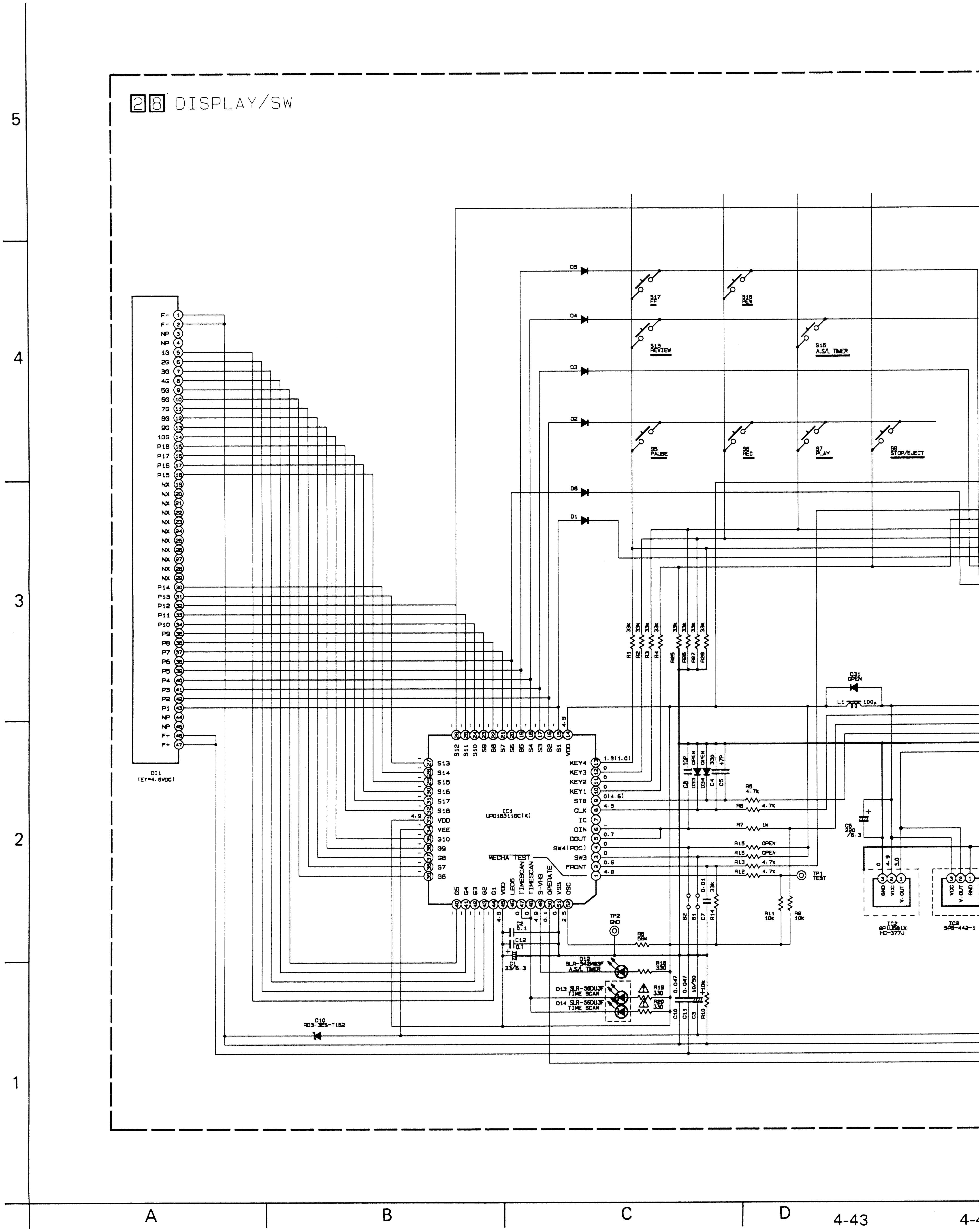
4.19 DEMODULATOR CIRCUIT BOARD

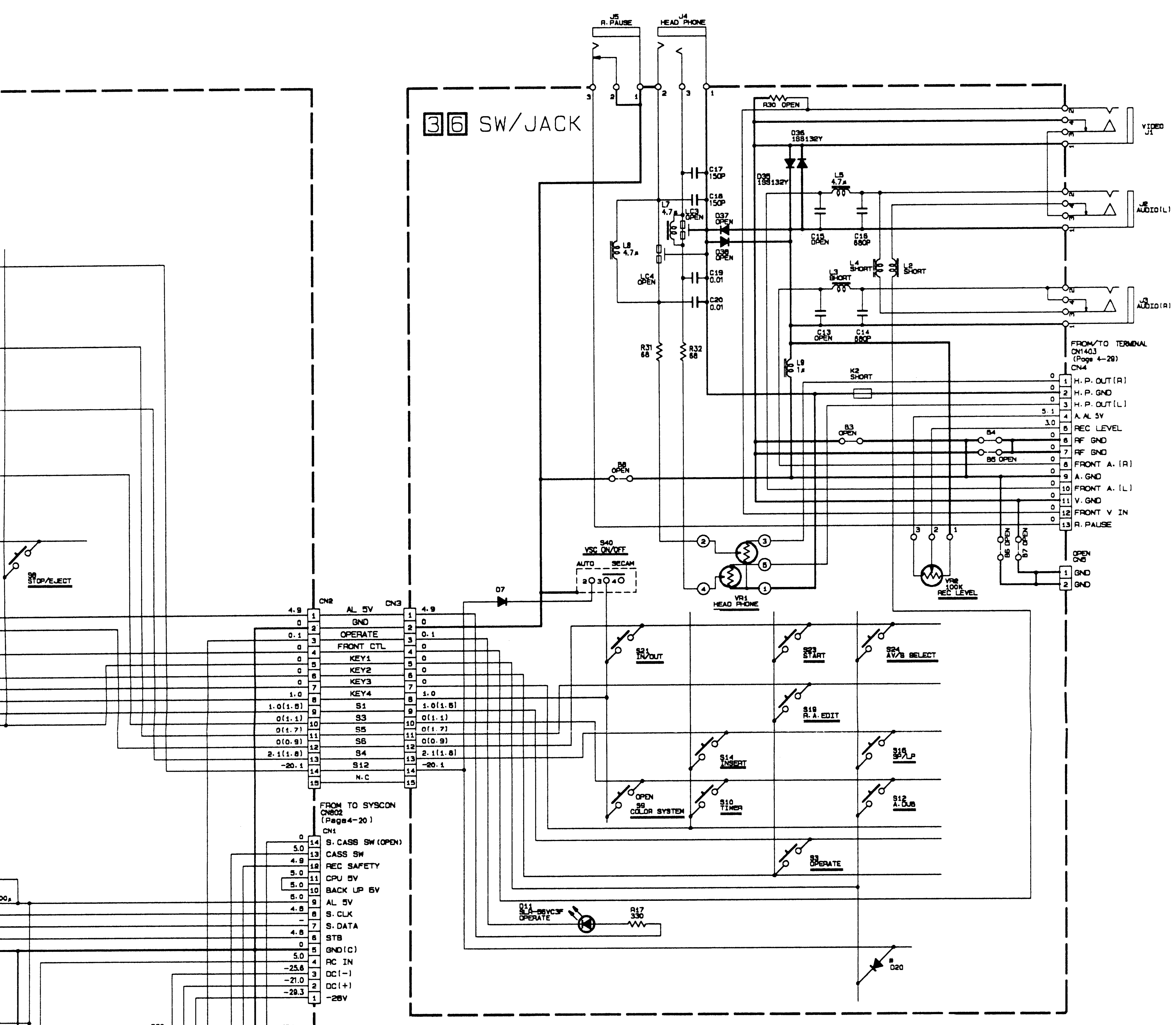

PB10974 DEMOD PWB
UL MARK
DEMOD PWB ASS'Y
1
4
A
B
C
D
1
2
3
4
5
6
Q1501
R1507
CF1501
C1504
W1502
Q1503
R1509
D1502
L1505
R1539
R1538
C1555
R1504
C1504
C1503
R1502
VR1501
R1542
R1501
W1501
B1509
C1501
CF1504
C1511
C1512
IC1501
R1518
C1509
X1501
C1519
R1525
R1524
IC1502
C1517
C1518
R1532
R1531
C1522
R1526
C1521
CN1501
9
1
L1501
CF1503
C1510
R1510
C1507
C1515
C1516
C1539
B1514
W1510
W1506
CF1502
R1513
R1534
C1544
C1508
L1504
C1546
C1547
C1541
35
C1550
R1537
X1502
R1543
D1503
C1551
40
45
IC1503
52
C1552
27
30
B1508
B1507
C1548
W1507
C1549
B1505
C1532
B1510
W1509
B1511
C1534
C1537
C1554
C1538
C1513
C1524
C1526
C1529
C1528
C1531
C1533
C1535
R1540
C1556
L1503
C1557
R1541
LC1502
LC1501
L1502
C1530
B1517
R1522
26
20
15
10
5
CN1502
6
1

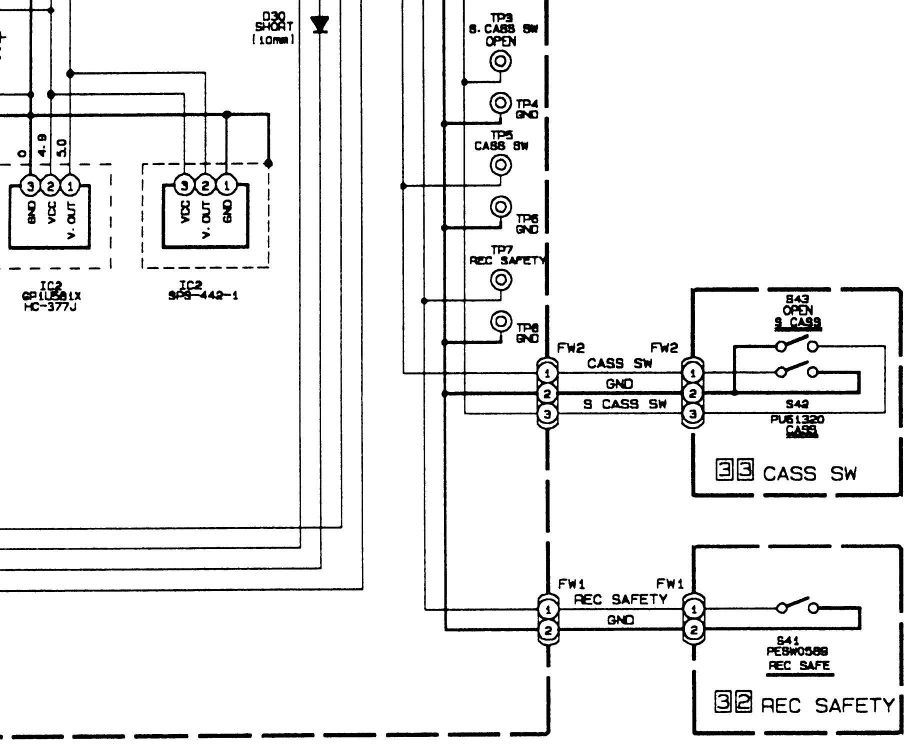
COMPONENT PARTS LOCATION GUIDE
<DEMOD PWB>

REF.NO.	LOCATION		
CAPACITOR			
C1501	B	C	2C
C1502	B	C	2D
C1503	B	C	2D
C1504	B	C	3D
C1505	B	C	3D
C1506	B	C	3D
C1507	B	C	3C
C1508	B	C	4D
C1509	B	C	2C
C1510	B	C	2C
C1511	B	C	2C
C1512	B	C	2C
C1513	B	C	2B
C1514	B	C	2B
C1515	A	D	3B
C1516	A	D	3C
C1517	A	D	2A
C1518	B	C	1A
C1519	B	C	1B
C1520	B	C	2A
C1521	B	C	2A
C1522	B	C	3A
C1524	A	D	4B
C1525	B	C	4B
C1526	A	D	4B
C1527	B	C	4B
C1528	A	D	5B
C1529	A	D	4B
C1530	A	D	5A
C1531	A	D	5B
C1532	B	C	5B
C1533	A	D	6B
C1534	B	C	6B
C1535	A	D	6B
C1537	B	C	6B
C1538	B	C	4C
C1539	A	D	3C
C1540	B	C	4C
C1541	A	D	4C
C1542	B	C	4C
C1543	B	C	4C
C1544	A	D	4D
C1545	B	C	5C
C1546	A	D	5C
C1547	A	D	5C
C1548	B	C	5C
C1549	B	C	5C
C1550	A	D	5D
C1551	B	C	6C
C1552	B	C	5C
C1553	B	C	6C
C1554	B	C	6C
C1555	B	C	7D
C1556	B	C	7A
C1557	B	C	7A
C1558	B	C	2C
CONNECTOR			
CN1501	A	D	3A
CN1502	A	D	6A
DIODE			
D1502	B	C	6D
D1503	A	D	6C
IC			
IC1501	A	D	3C
IC1502	A	D	1B
IC1503	A	D	6B
COIL			
L1501	A	D	2D
L1502	A	D	4A
L1503	A	D	7B
L1504	A	D	5D
TRANSISTOR			
Q1501	A	D	2D
Q1502	B	C	2D
Q1503	B	C	4D
Q1504	B	C	3D
Q1507	B	C	2A
Q1508	B	C	2A
RESISTOR			
R1501	B	C	1D
R1502	B	C	1D
R1503	B	C	2D
R1504	B	C	2D
R1505	B	C	2D
R1506	B	C	2D
R1507	B	C	3D
R1508	B	C	4D
R1509	B	C	4D
R1510	B	C	3C
R1511	B	C	3C
R1512	B	C	3C
R1513	B	C	3D
R1514	B	C	2C
R1515	B	C	2C
R1516	B	C	2C
R1517	B	C	2C
R1518	B	C	1C
R1519	B	C	1C
R1520	B	C	3B
R1521	B	C	2B
R1522	B	C	3B
R1523	B	C	3B
R1524	B	C	1A
R1525	B	C	1A
R1526	B	C	3A
R1527	B	C	4B
R1528	B	C	4B
R1529	B	C	2A
R1530	B	C	2A
R1531	B	C	3A
R1532	B	C	2A
R1533	B	C	3C
R1534	B	C	4C
R1535	B	C	4C
R1536	B	C	5C
R1537	B	C	6D
R1538	B	C	6C
R1539	B	C	6D
R1540	B	C	6A
R1541	B	C	6A
R1542	B	C	2D
R1543	A	D	6C
OTHERS			
CF1501	A	D	3D
CF1502	A	D	3D
CF1503	A	D	2C
CF1504	A	D	1C
LC1501	A	D	5A
LC1502	A	D	6A
VR1501	A	D	1D
X1501	A	D	2B
X1502	A	D	6C

4.20 DISPLAY, SW/JACK, REC SAFETY AND CASSETTE SW SCHEMATIC DIAGRAMS


28 DISPLAY/SW
5
4
3
2
1
A
B
C
D
DI1 (Ef=4.5VDC)
F- F- NP NP 1G 2G 3G 4G 5G 6G 7G 8G 9G 10G P18 P17 P16 P15 NX P14 P13 P12 P11 P10 P9 P8 P7 P6 P5 P4 P3 P2 P1 NP NP F+ F+
D1 D2 D3 D4 D5 D6
S17 FF
S18 REW
S13 REVIEW
S15 A.S/L TIMER
S5 PAUSE
S6 REC
S7 PLAY
S8 STOP/EJECT
R1 R2 R3 R4 R25 R26 R27 R28 33K
IC1 UPD16311GC(K)
S12 S11 S10 S9 S8 S7 S6 S5 S4 S3 S2 S1 VDD
S13 S14 S15 S16 S17 S18 VDD VEE G10 G9 G8 G7 G6
KEY4 KEY3 KEY2 KEY1 STB CLK IC DIN DOUT SW4(PDC) SW3 FRONT
G5 G4 G3 G2 G1 VDD LED5 TIMESCAN TIMESCAN S-VHS OPERATE VSS OSC
MECHA TEST
1.3(1.0)
0(4.6)
4.5
0.7
0.6
4.9
2.5
C2 0.1
C12 0.1
C1 33/6.3
TP2 GND
R8 56k
D12 SLR-342MG3F A.S/L TIMER
R18 330
D13 SLR-56DU3F TIME SCAN
D14 SLR-56DU3F TIME SCAN
R19 330
R20 330
C10 0.047
C11 0.047
C3 10/50
R10 10k
D10 RD3.3ES-T1B2
C8 10P
D33 OPEN
D34 OPEN
C4 33p
C5 47P
R5 4.7k
R6 4.7k
R7 1k
R15 OPEN
R16 OPEN
R13 4.7k
R12 4.7k
TP1 TEST
B2 B1
C7 0.01
R14 33k
R11 10k
R9 10k
D31 OPEN
L1 100μ
C6 220/6.3
GND VCC V.OUT
IC2 GP1U581X HC-377J
VCC V.OUT GND
IC2 SPS-442-1

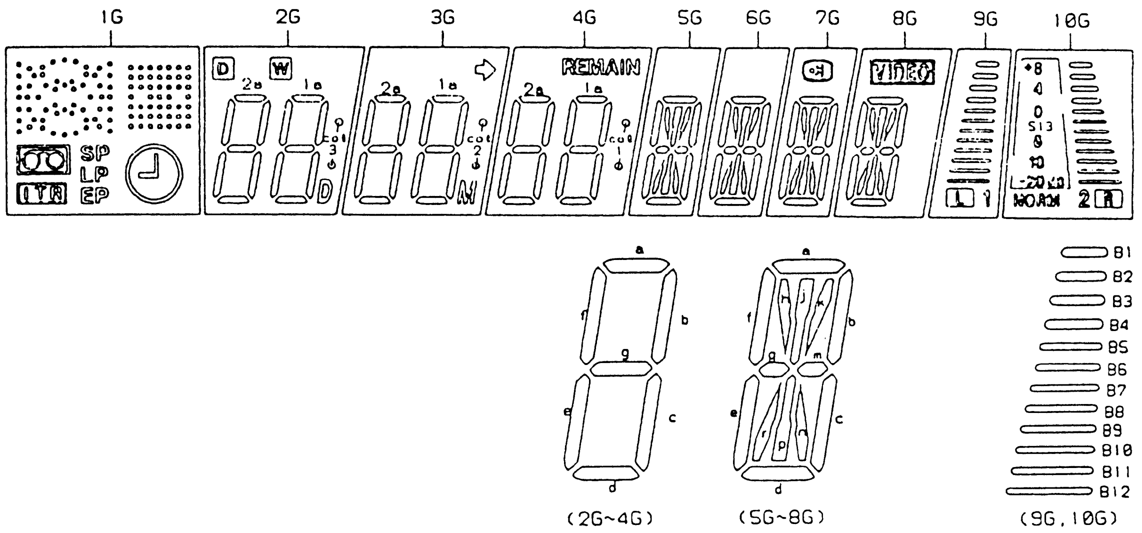

36 SW/JACK
J5 R. PAUSE
J4 HEAD PHONE
VIDEO J1
AUDIO(L) J6
AUDIO(R) J3
FROM/TO TERMINAL CN1403 (Page 4-29)
CN4
H.P. OUT(R)
H.P. GND
H.P. OUT(L)
A.AL 5V
REC LEVEL
RF GND
RF GND
FRONT A.(R)
A.GND
FRONT A.(L)
V.GND
FRONT V IN
R.PAUSE
OPEN CN5
GND
GND
VR1 HEAD PHONE
VR8 100K REC LEVEL
S40 VSC ON/OFF
AUTO SECAM
D7
S8 STOP/EJECT
CN2
CN3
AL 5V
GND
OPERATE
FRONT CTL
KEY1
KEY2
KEY3
KEY4
S1
S3
S5
S6
S4
S12
N.C
S21 IN/OUT
S23 START
S24 AV/S SELECT
S19 R.A.EDIT
S14 INSERT
S16 SP/LP
S9 COLOR SYSTEM
S10 TIMER
S12 A.DUB
S3 OPERATE
D11 SLR-56VC3F OPERATE
R17 330
D20
FROM TO SYSCON CN802 (Page4-20)
CN1
S.CASS SW (OPEN)
CASS SW
REC SAFETY
CPU 5V
BACK UP 5V
AL 5V
S.CLK
S.DATA
STB
GND(C)
RC IN
DC(-)
DC(+)
-28V


D30 SHORT (10mm)
TP3 S.CASS SW OPEN
TP4 GND
TP5 CASS SW
TP6 GND
TP7 REC SAFETY
TP8 GND
IC2 GP1U58LX HC-377J
IC2 SPS-442-1
GND VCC V.OUT
FW2 CASS SW GND S CASS SW
S43 OPEN S CASS
S42 PUS1320 CASS
33 CASS SW
FW1 REC SAFETY GND
S41 PESW0589 REC SAFE
32 REC SAFETY

NOTE : COMPARISON CHART OF MODELS & MARKS (#)

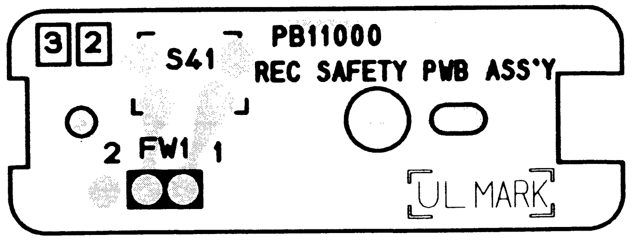
REF.No.	MODELS	
	HR-E939EG	HR-E939EH
D20	OPEN	USED

–FDP GRID ASSIGNMENT–

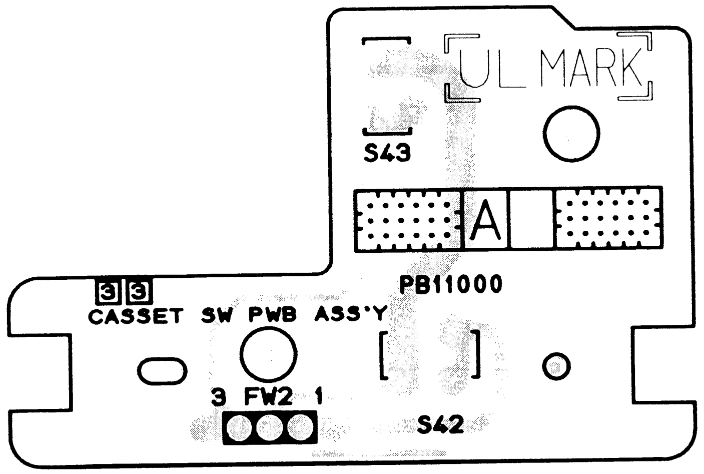

1G
2G
3G
4G
5G
6G
7G
8G
9G
10G
D
W
REMAIN
VIDEO
SP
LP
EP
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
B12
(2G~4G)
(5G~8G)
(9G,10G)

4.21 DISPLAY, SW/JACK, REC SAFETY, CASSETTE SW AND JOG CIRCUIT BOARDS

-REC SAFETY-


32
S41
PB11000
REC SAFETY PWB ASS'Y
2 FW1 1
UL MARK

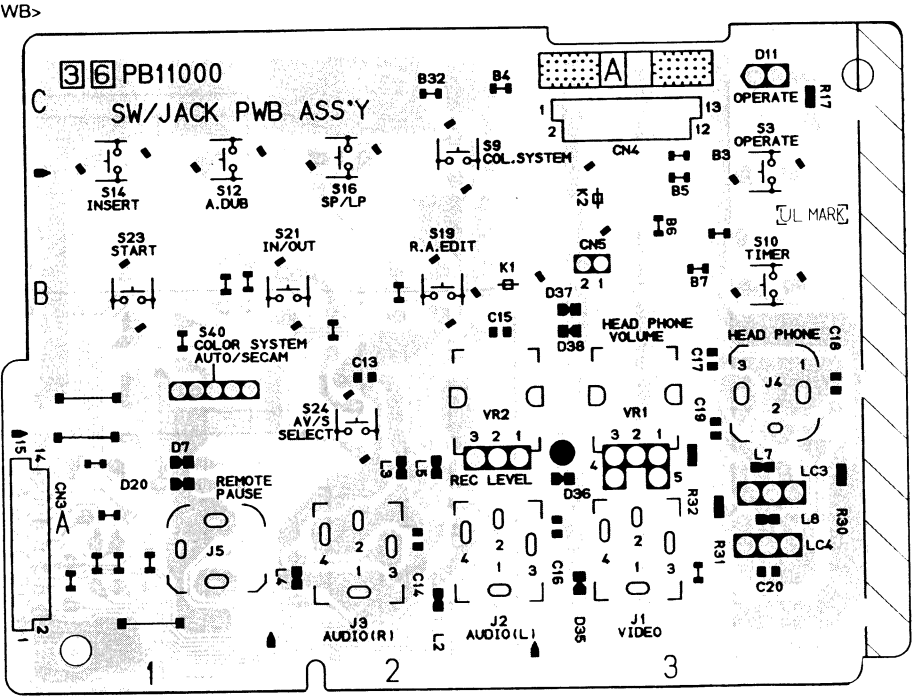
-CASSETTE SW-


UL MARK
S43
A
33
PB11000
CASSET SW PWB ASS'Y
3 FW2 1
S42

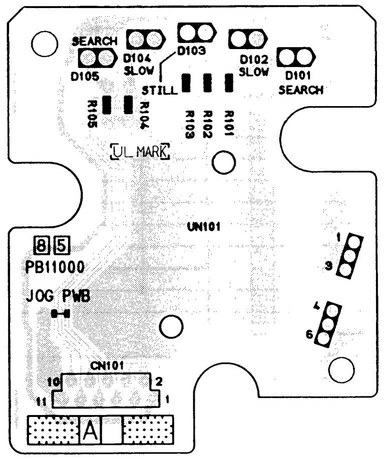
-SW/JACK-

COMPONENT PARTS LOCATION GUIDE <SW / JACK PWB>

REF.No.	LOCATION		
CAPACITOR			
C13	A	D	2B
C14	A	D	2A
C15	A	D	2B
C16	A	D	3A
C17	A	D	3B
C18	A	D	4B
C19	A	D	3A
C20	A	D	3A
CONNECTOR			
CN3	A	D	1A
CN4	A	D	3C
CN5	A	D	3B
DIODE			
D7	A	D	1A
D11	A	D	3C
D20	A	D	1A
D35	A	D	3A
D36	A	D	3A
D37	A	D	3B
D38	A	D	3B
JACK			
J1	A	D	3A
J2	A	D	2A
J3	A	D	2A
J4	A	D	3B
J5	A	D	1A
COIL			
L2	A	D	2A
L3	A	D	2A
L4	A	D	2A
L5	A	D	2A
L7	A	D	3A
L8	A	D	3A
RESISTOR			
R17	A	D	4C
R30	A	D	4A
R31	A	D	3A
R32	A	D	3A
SWITCH			
S3	A	D	3B
S9	A	D	2C
S10	A	D	3B
S12	A	D	1C
S14	A	D	1C
S16	A	D	2C
S19	A	D	2B
S21	A	D	2B
S23	A	D	1B
S24	A	D	2B
S40	A	D	1B
OTHERS			
K1	A	D	2B
K2	A	D	3B
LC3	A	D	3A
LC4	A	D	3A
VR1	A	D	3B
VR2	A	D	2B


36 PB11000
SW/JACK PWB ASS'Y
C
B
A
S14 INSERT
S12 A.DUB
S16 SP/LP
S9 COL.SYSTEM
CN4
D11
OPERATE
R17
S3 OPERATE
S23 START
S21 IN/OUT
S19 R.A.EDIT
K1
K2
CN5
D37
S10 TIMER
UL MARK
S40 COLOR SYSTEM AUTO/SECAM
C13
S24 AV/S SELECT
C15
D38
HEAD PHONE VOLUME
HEAD PHONE
VR2
VR1
REC LEVEL
D36
D7
D20
REMOTE PAUSE
CN3
J5
J4
J3 AUDIO(R)
J2 AUDIO(L)
J1 VIDEO
L7
LC3
L8
LC4
C20
R30
R31
R32
D35
1
2
3

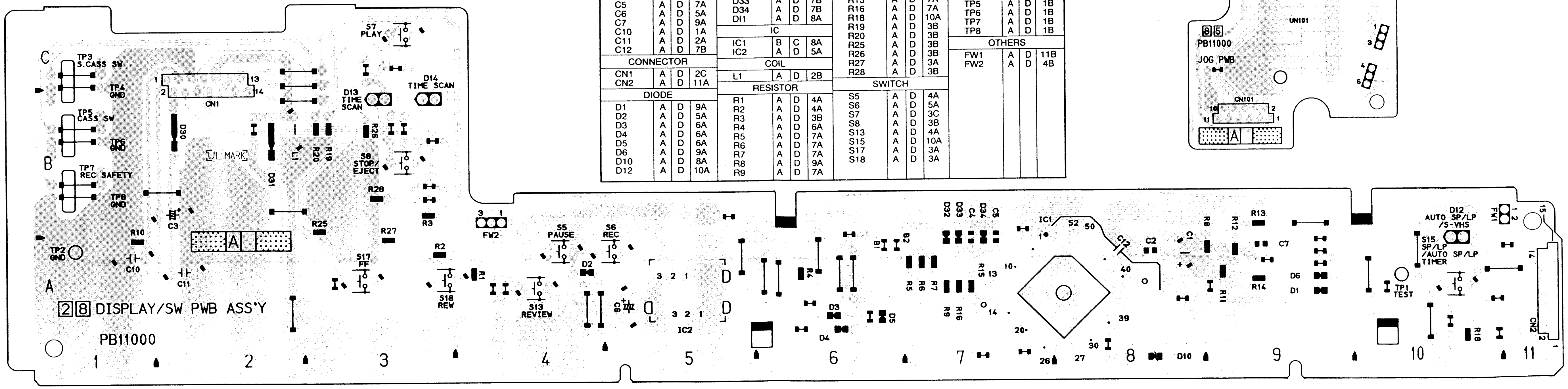
-JOG-


SEARCH
D104 SLOW
D103
D102 SLOW
D101 SEARCH
D105
STILL
R105
R104
R103
R102
R101
UL MARK
85
PB11000
JOG PWB
UN101
CN101
A

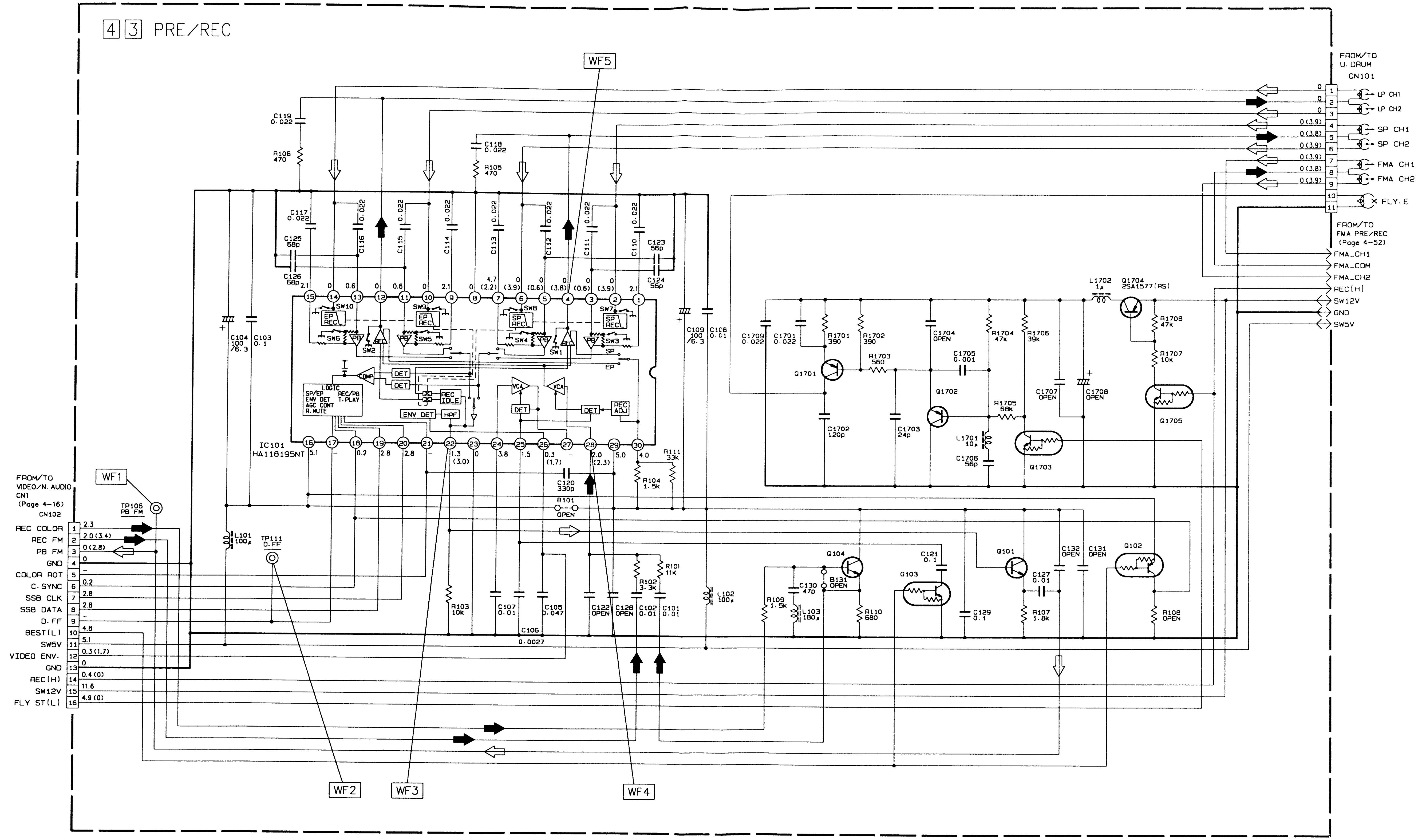
COMPONENT PARTS LOCATION GUIDE <DISPLAY/SW PWB>

REF.No.	LOCATION		
CAPACITOR			
C1	A	D	8A
C2	A	D	8A
C3	A	D	2B
C4	A	D	7A
C5	A	D	7A
C6	A	D	5A
C7	A	D	9A
C10	A	D	1A
C11	A	D	2A
C12	A	D	7B
CONNECTOR			
CN1	A	D	2C
CN2	A	D	11A
DIODE			
D1	A	D	9A
D2	A	D	5A
D3	A	D	6A
D4	A	D	6A
D5	A	D	6A
D6	A	D	9A
D10	A	D	8A
D12	A	D	10A
D13	A	D	3B
D14	A	D	3B
D30	A	D	2B
D31	A	D	2B
D32	A	D	7B
D33	A	D	7B
D34	A	D	7B
DI1	A	D	8A
IC			
IC1	B	C	8A
IC2	A	D	5A
COIL			
L1	A	D	2B
RESISTOR			
R1	A	D	4A
R2	A	D	4A
R3	A	D	3B
R4	A	D	6A
R5	A	D	7A
R6	A	D	7A
R7	A	D	7A
R8	A	D	9A
R9	A	D	7A
R10	A	D	2A
R11	A	D	9A
R12	A	D	9A
R13	A	D	9B
R14	A	D	9A
R15	A	D	7A
R16	A	D	7A
R18	A	D	10A
R19	A	D	3B
R20	A	D	3B
R25	A	D	3B
R26	A	D	3B
R27	A	D	3A
R28	A	D	3B
SWITCH			
S5	A	D	4A
S6	A	D	5A
S7	A	D	3C
S8	A	D	3B
S13	A	D	4A
S15	A	D	10A
S17	A	D	3A
S18	A	D	3A
TEST POINT			
TP1	A	D	10A
TP2	A	D	1A
TP3	A	D	1C
TP4	A	D	1C
TP5	A	D	1B
TP6	A	D	1B
TP7	A	D	1B
TP8	A	D	1B
OTHERS			
FW1	A	D	11B
FW2	A	D	4B

-DISPLAY/SW-


C
B
A
TP3 S.CASS SW
TP4 GND
TP5 CASS SW
TP6 GND
TP7 REC SAFETY
TP8 GND
TP2 GND
CN1
D30
D31
UL MARK
S7 PLAY
D13 TIME SCAN
D14 TIME SCAN
S8 STOP/EJECT
R26
R19
R20
L1
R28
R25
R27
R3
R10
C3
C10
C11
A
S17 FF
R2
R1
S18 REW
3 1 FW2
S5 PAUSE
S6 REC
D2
S13 REVIEW
IC2
D3
D4
D5
R4
B1
B2
R5
R6
R7
D32
D33
C4
D34
C5
IC1
C12
C2
C1
R9
R16
R15
R8
R12
R11
R13
C7
R14
D6
D1
D10
D12 AUTO SP/LP /S-VHS
FW1
S15 SP/LP /AUTO SP/LP TIMER
TP1 TEST
R18
CN2
28 DISPLAY/SW PWB ASS'Y
PB11000
1
2
3
4
5
6
7
8
9
10
11

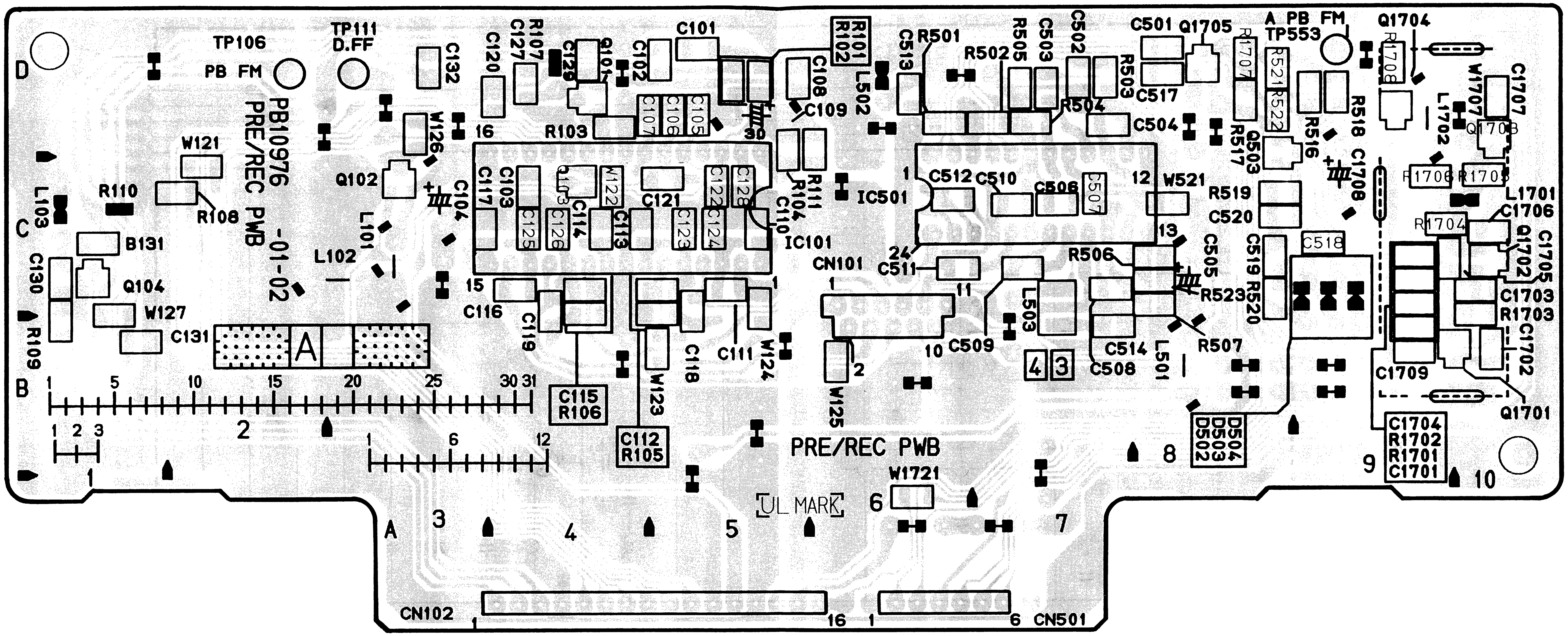
4.22 PRE/REC SCHEMATIC DIAGRAM


4 3 PRE/REC
WF5
WF1
WF2
WF3
WF4
FROM/TO
U. DRUM
CN101
LP CH1
LP CH2
SP CH1
SP CH2
FMA CH1
FMA CH2
FLY. E
FROM/TO
FMA PRE/REC
(Page 4-52)
FMA_CH1
FMA_COM
FMA_CH2
REC(H)
SW12V
GND
SW5V
FROM/TO
VIDEO/N. AUDIO
CN1
(Page 4-16)
CN102
REC COLOR
REC FM
PB FM
GND
COLOR ROT
C. SYNC
SSB CLK
SSB DATA
D. FF
BEST(L)
SW5V
VIDEO ENV.
GND
REC(H)
SW12V
FLY ST(L)
TP106
PB FM
TP111
D. FF
IC101
HA118195NT
LOGIC
SP/EP
REC/PB
ENV DET
T.PLAY
AGC CONT
R.MUTE
ENV DET
HPF
REC IDLE
DET
VCA
REC ADJ
COMP
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
SW9
SW10
EP REC
SP REC
C119 0.022
R106 470
C118 0.022
R105 470
C117 0.022
C125 68p
C126 68p
C116 0.022
C115 0.022
C114 0.022
C113 0.022
C112 0.022
C111 0.022
C110 0.022
C123 56p
C124 56p
C104 100 /6.3
C103 0.1
C109 100 /6.3
C108 0.01
L101 100μ
L102 100μ
C120 330p
B101 OPEN
R111 33k
R104 1.5k
R103 10k
C107 0.01
C105 0.047
C106 0.0027
C122 OPEN
C128 OPEN
R102 3.3k
R101 11K
C102 0.01
C101 0.01
Q104
Q103
Q101
Q102
C121 0.1
C130 47p
B131 OPEN
L103 180μ
R109 1.5k
R110 680
C129 0.1
C127 0.01
R107 1.8k
C132 OPEN
C131 OPEN
R108 OPEN
L1702 1μ
Q1704 2SA1577(RS)
C1709 0.022
C1701 0.022
R1701 390
R1702 390
R1703 560
Q1701
C1702 120p
C1703 24p
C1704 OPEN
C1705 0.001
Q1702
R1704 47k
R1706 39k
R1705 68k
L1701 10μ
C1706 56p
Q1703
C1707 OPEN
C1708 OPEN
R1708 47k
R1707 10k
Q1705

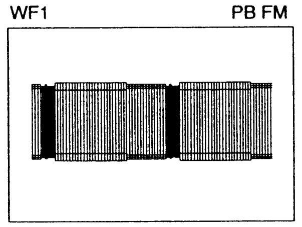
NOTES: UNLESS OTHERWISE SPECIFIED

ALL NPN TYPE TRANSISTORS ARE 2SC4081 (QRS).
ALL PNP TYPE TRANSISTORS ARE 2SA1576 (QRS).
ALL NPN TYPE DIGITAL TRANSISTORS ARE DTC144WU.
ALL PNP TYPE DIGITAL TRANSISTORS ARE DTC144WU.

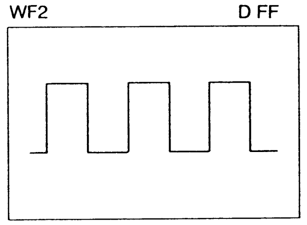
4.23 PRE/REC CIRCUIT BOARD


TP106
PB FM
TP111
D.FF
PB10976
PRE/REC PWB
-01-02
C132
C120
C127
R107
C129
Q101
C102
C101
R101
R102
C108
C109
L502
C513
R501
R502
R505
C503
C502
R504
R503
C501
Q1705
C517
C504
A PB FM
TP553
R1707
R521
R522
R517
Q503
R516
R518
C1708
Q1704
R1708
W1707
L1702
C1707
Q1703
W121
R110
R108
L103
C130
B131
Q104
W127
R109
C131
Q102
W126
C104
L101
L102
R103
C107
C106
C105
C117
C103
Q103
C114
W122
C121
C122
C128
C125
C126
C113
C123
C124
C110
R104
R111
IC101
IC501
C512
C510
C506
C507
W521
R519
C520
C505
C519
R520
C518
R1706
R1705
L1701
C1706
R1704
C1705
Q1702
C1703
R1703
C1702
C1709
Q1701
C116
C119
C115
R106
C112
R105
C118
C111
W123
W124
W125
CN101
C511
L503
R506
R523
R507
C509
C514
C508
L501
D504
D503
D502
C1704
R1702
R1701
C1701
PRE/REC PWB
W1721
UL MARK
CN102
CN501
A
B
C
D
1
2
3
4
5
6
7
8
9
10

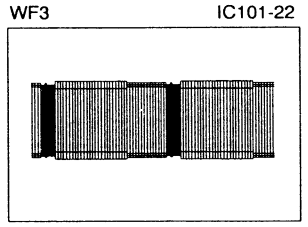
PRE/REC BOARD
- PRE/REC -



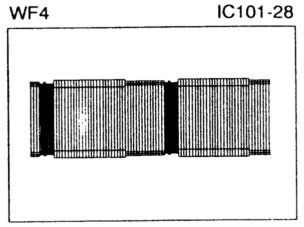
REC 0.56Vp-p
20mV/5msec /DIV



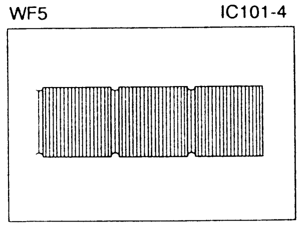
REC/PB 5.2Vp-p
0.2V/10msec /DIV



PB 0.56Vp-p
20mV/5msec /DIV



REC 0.04Vp-p
2mV/5msec/DIV

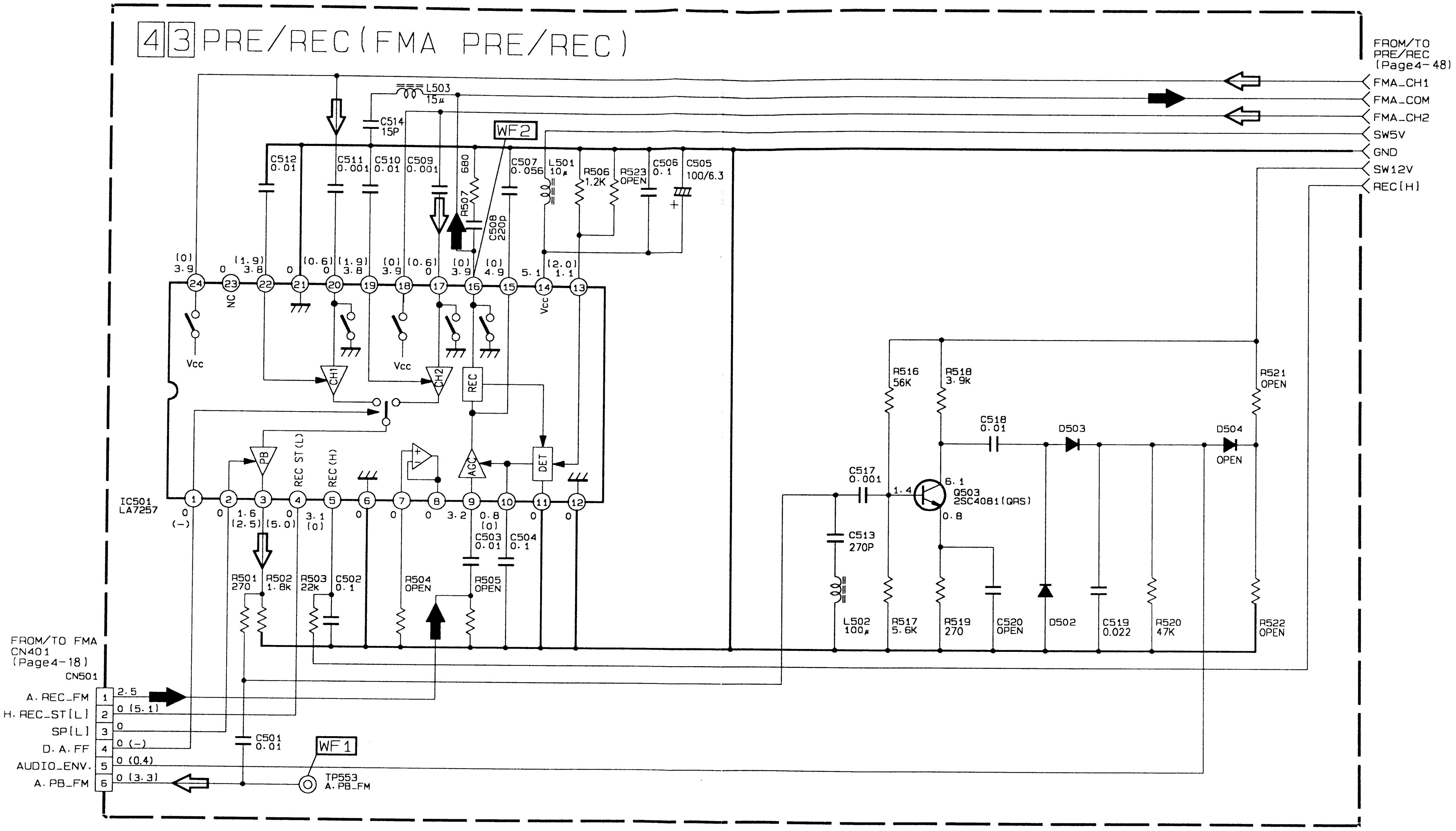


REC 3.3Vp-p
0.1V/5msec/DIV

COMPONENT PARTS LOCATION GUIDE <PRE/REC PWB>

REF.No.	LOCATION		
CAPACITOR			
C101	B	C	5D
C102	B	C	5D
C103	B	C	4C
C104	A	D	3C
C105	B	C	5D
C106	B	C	5D
C107	B	C	5D
C108	B	C	5D
C109	A	D	5D
C110	B	C	5C
C111	B	C	5C
C112	B	C	5C
C113	B	C	4C
C114	B	C	4C
C115	B	C	4C
C116	B	C	4C
C117	B	C	3C
C118	B	C	5C
C119	B	C	4C
C120	B	C	4D
C121	B	C	5C
C122	B	C	5C
C123	B	C	5C
C124	B	C	5C
C125	B	C	4C
C126	B	C	4C
C127	B	C	4D
C128	B	C	5C
C129	B	C	4D
C130	B	C	1C
C131	B	C	1B
C132	B	C	3D
C501	B	C	8D
C502	B	C	7D
C503	B	C	7D
C504	B	C	7D
C505	A	D	8C
C506	B	C	7C
C507	B	C	7C
C508	B	C	7C
C509	B	C	7C
C510	B	C	7C
C511	B	C	6C
C512	B	C	6C
C513	B	C	6D
C514	B	C	7B
C517	B	C	8D
C518	B	C	9C
C519	B	C	8C
C520	B	C	8C
C1701	B	C	9B
C1702	B	C	10B
C1703	B	C	10C
C1704	B	C	9C
C1705	B	C	9C
C1706	B	C	10C
C1707	B	C	10D
C1708	A	D	9D
C1709	B	C	9B
CONNECTOR			
CN101	A	D	6C
CN102	A	D	4A
CN501	A	D	6A
DIODE			
D502	A	D	9B
D503	A	D	9B
D504	A	D	9B
IC			
IC101	A	D	5C
IC501	A	D	6D
COIL			
L101	A	D	3C
L102	A	D	3C
L103	A	D	1C
L501	A	D	8B
L502	A	D	6D
L503	B	C	7C
L1701	A	D	10C
L1702	A	D	9D
TRANSISTOR			
Q101	B	C	4D
Q102	B	C	3C
Q103	B	C	4C
Q104	B	C	1C
Q503	B	C	8D
Q1701	B	C	10B
Q1702	B	C	10C
Q1703	B	C	10D
Q1704	B	C	9D
Q1705	B	C	8D
RESISTOR			
R101	B	C	5D
R102	B	C	5D
R103	B	C	4D
R104	B	C	5D
R105	B	C	5C
R106	B	C	4C
R107	A	D	4D
R108	B	C	2C
R109	B	C	1B
R110	A	D	1C
R111	B	C	6D
R501	B	C	6D
R502	B	C	7D
R503	B	C	7D
R504	B	C	7D
R505	B	C	7D
R506	B	C	8C
R507	B	C	8C
R516	B	C	9D
R517	B	C	8D
R518	B	C	9D
R519	B	C	8C
R520	B	C	8C
R521	B	C	8D
R522	B	C	8D
R523	B	C	8C
R1701	B	C	9C
R1702	B	C	9C
R1703	B	C	10B
R1704	B	C	9C
R1705	B	C	10C
R1706	B	C	9C
R1707	B	C	8D
R1708	B	C	9D
TEST POINT			
TP106	A	D	2D
TP111	A	D	3D
TP553	A	D	9D

4.24 FMA PRE/REC SCHEMATIC DIAGRAM

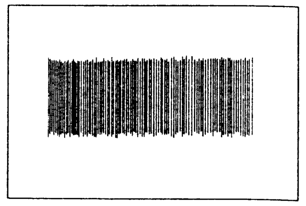


4 3 PRE/REC (FMA PRE/REC)
FROM/TO PRE/REC (Page4-48)
FMA_CH1
FMA_COM
FMA_CH2
SW5V
GND
SW12V
REC(H)
L503 15μ
C514 15P
WF2
C512 0.01
C511 0.001
C510 0.01
C509 0.001
R507 680
C508 220P
C507 0.056
L501 10μ
R506 1.2K
R523 OPEN
C506 0.1
C505 100/6.3
IC501 LA7257
Vcc
NC
CH1
CH2
REC
PB
REC ST(L)
REC(H)
AGC
DET
R516 56K
R518 3.9k
R521 OPEN
C518 0.01
D503
D504 OPEN
C517 0.001
Q503 2SC4081(QRS)
C513 270P
L502 100μ
R517 5.6K
R519 270
C520 OPEN
D502
C519 0.022
R520 47K
R522 OPEN
R501 270
R502 1.8k
R503 22k
C502 0.1
R504 OPEN
R505 OPEN
C503 0.01
C504 0.1
FROM/TO FMA CN401 (Page4-18)
CN501
A.REC_FM
H.REC_ST(L)
SP(L)
D.A.FF
AUDIO_ENV.
A.PB_FM
C501 0.01
WF1
TP553 A.PB_FM

PRE/REC BOARD

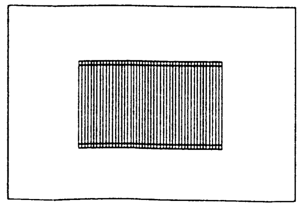
- FMA PRE/REC -

WF1 TP-553 A.PB FM



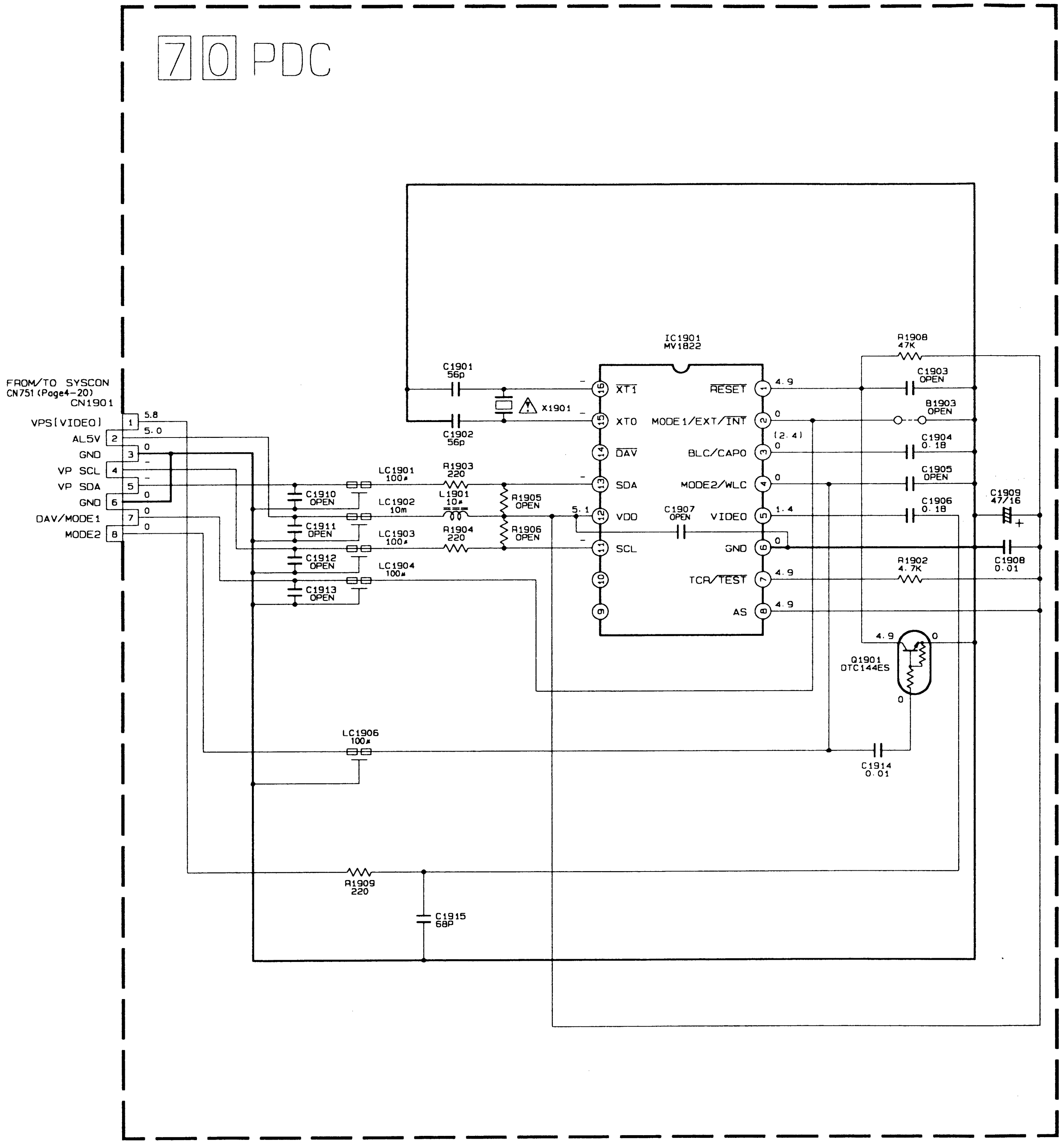
PB0.4Vp-p
20mV/1msec/DIV

WF2 IC501-16

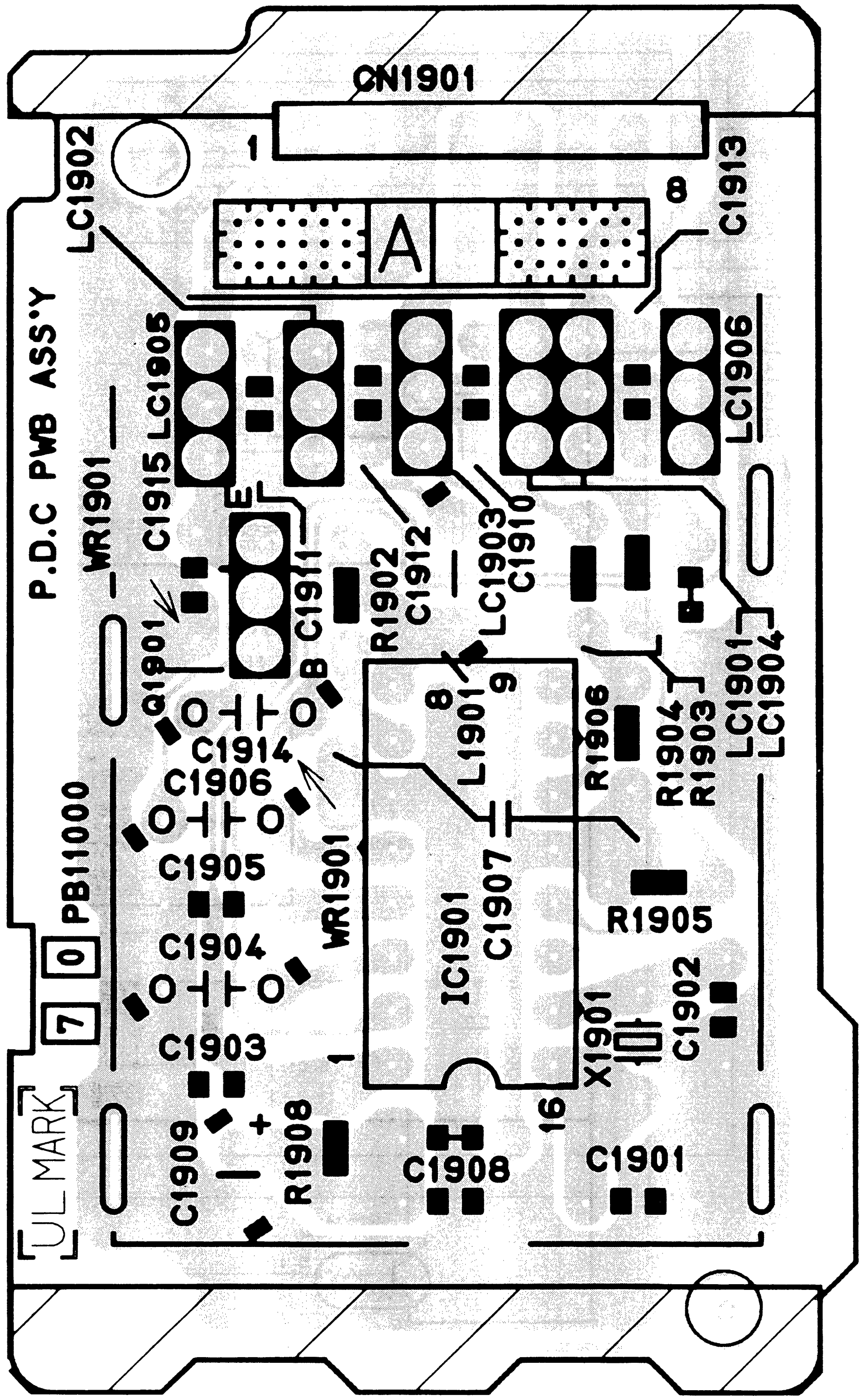


REC 0.36Vp-p
0.2V/1msec/DIV

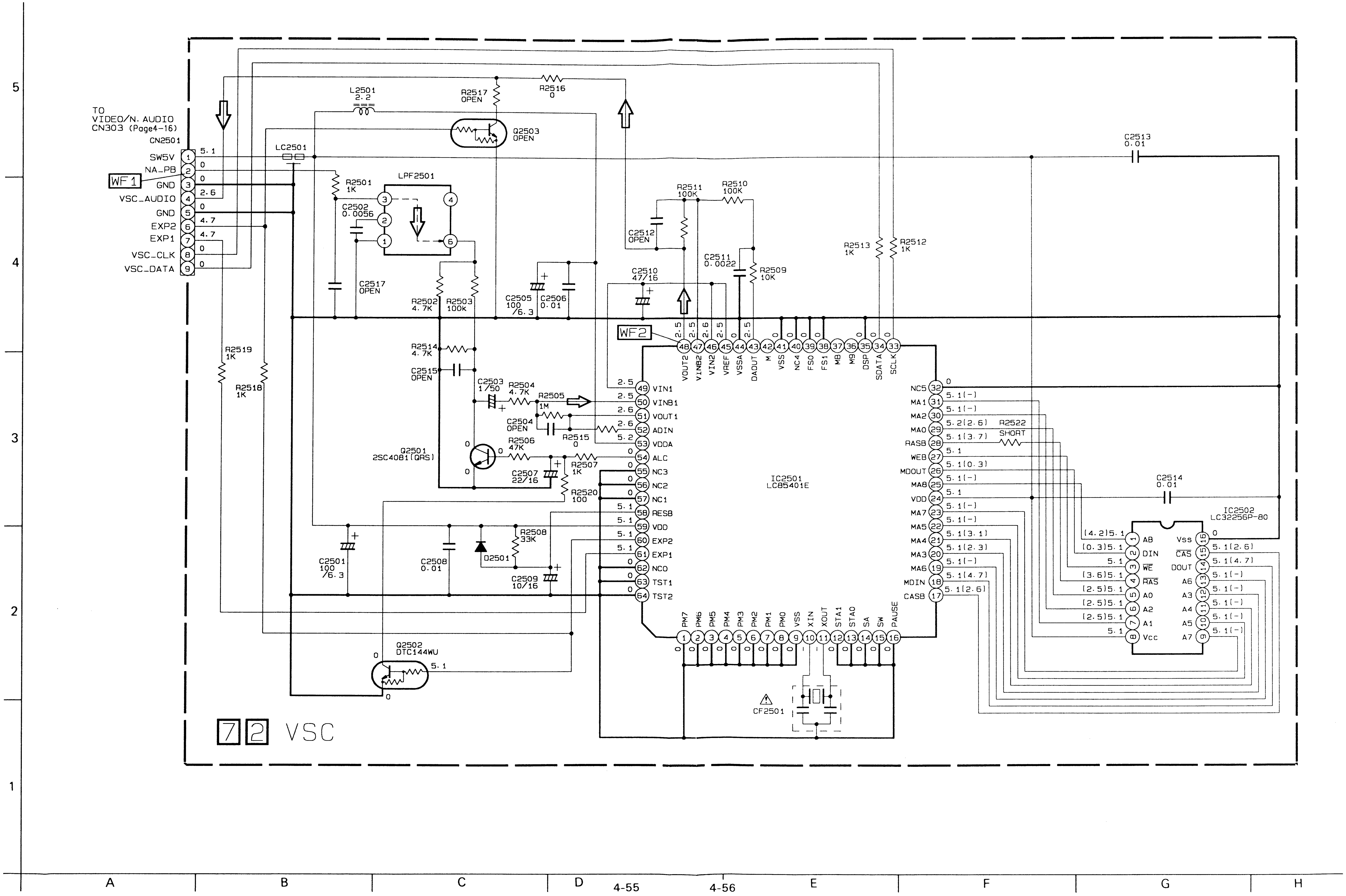
4.25 PDC SCHEMATIC DIAGRAM


70 PDC
FROM/TO SYSCON
CN751 (Page4-20)
CN1901
VPS[VIDEO] 1 5.8
AL5V 2 5.0
GND 3 0
VP SCL 4 –
VP SDA 5 –
GND 6 0
DAV/MODE1 7 0
MODE2 8 0
C1910 OPEN
C1911 OPEN
C1912 OPEN
C1913 OPEN
LC1901 100µ
LC1902 10m
LC1903 100µ
LC1904 100µ
R1903 220
L1901 10µ
R1904 220
R1905 OPEN
R1906 OPEN
C1901 56p
C1902 56p
X1901
IC1901 MV1822
16 XT1
15 XTO
14 DAV
13 SDA
12 VDD 5.1
11 SCL
10
9
1 RESET 4.9
2 MODE1/EXT/INT 0
3 BLC/CAPO (2.4) 0
4 MODE2/WLC 0
5 VIDEO 1.4
6 GND 0
7 TCR/TEST 4.9
8 AS 4.9
C1907 OPEN
R1908 47K
C1903 OPEN
B1903 OPEN
C1904 0.18
C1905 OPEN
C1906 0.18
C1909 47/16
C1908 0.01
R1902 4.7K
Q1901 DTC144ES
4.9
0
0
C1914 0.01
LC1906 100µ
R1909 220
C1915 68P

4.26 PDC CIRCUIT BOARD

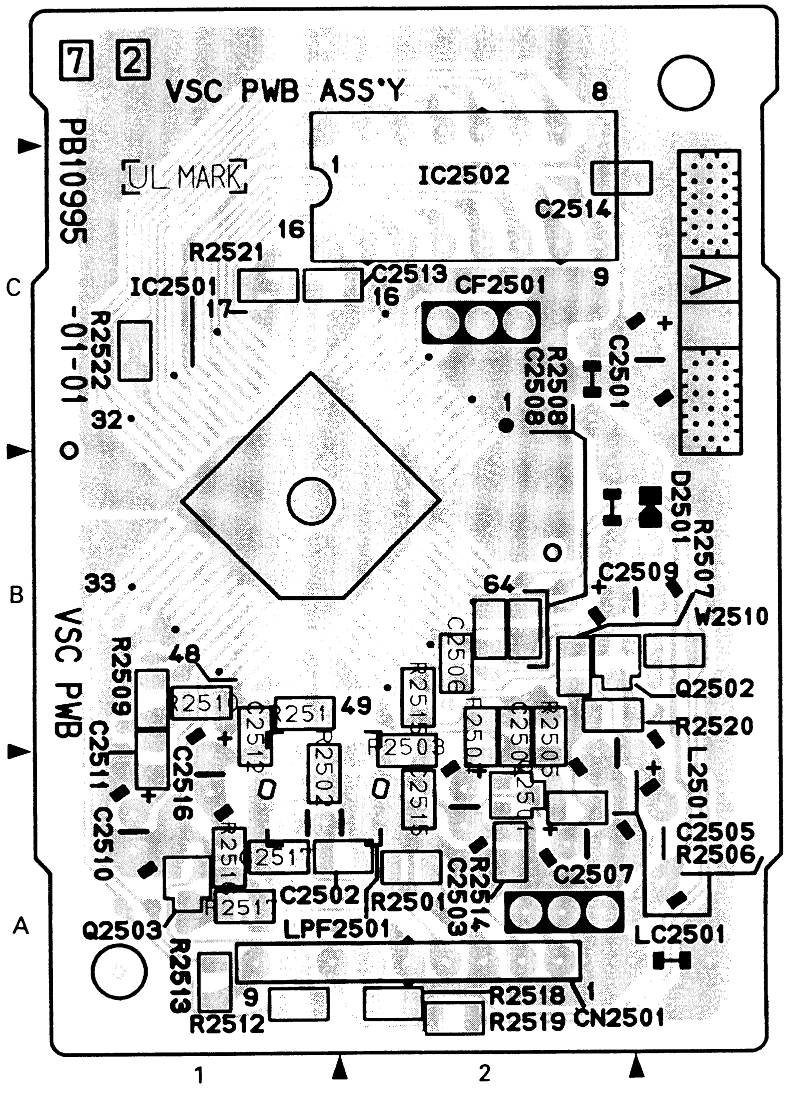

CN1901
1
8
A
LC1902
C1913
P.D.C PWB ASS'Y
LC1905
LC1906
C1915
WR1901
Q1901
E
B
C1911
R1902
C1912
LC1903
C1910
L1901
8
9
R1906
R1904
R1903
LC1901
LC1904
C1914
C1906
C1905
C1904
C1903
WR1901
IC1901
C1907
R1905
X1901
C1902
1
16
C1909
R1908
C1908
C1901
PB11000
7 0
UL MARK

4.27 VSC SCHEMATIC DIAGRAM



TO VIDEO/N. AUDIO CN303 (Page4-16)
CN2501
SW5V 1 5.1
NA_PB 2 0
GND 3 0
VSC_AUDIO 4 2.6
GND 5 0
EXP2 6 4.7
EXP1 7 4.7
VSC_CLK 8 0
VSC_DATA 9 0
WF1
WF2
LC2501
L2501 2.2
R2517 OPEN
R2516 0
Q2503 OPEN
R2501 1K
LPF2501
C2502 0.0056
C2517 OPEN
R2502 4.7K
R2503 100k
R2514 4.7K
C2515 OPEN
C2503 1/50
R2504 4.7K
R2505 1M
C2504 OPEN
R2515 0
R2506 47K
Q2501 2SC4081(QRS)
C2507 22/16
R2507 1K
R2520 100
C2505 100 /6.3
C2506 0.01
R2519 1K
R2518 1K
C2501 100 /6.3
C2508 0.01
D2501
R2508 33K
C2509 10/16
Q2502 DTC144WU
5.1
C2512 OPEN
R2511 100K
R2510 100K
C2510 47/16
C2511 0.0022
R2509 10K
R2513 1K
R2512 1K
C2513 0.01
C2514 0.01
R2522 SHORT
IC2501 LC85401E
48 VOUT2 2.5
47 VINB2 2.5
46 VIN2 2.6
45 VREF 2.5
44 VSSA 0
43 DAOUT 2.5
42 M
41 VSS 0
40 NC4 0
39 FS0 0
38 FS1 0
37 MB
36 M9
35 DSP 0
34 SDATA 0
33 SCLK 0
49 VIN1 2.5
50 VINB1 2.5
51 VOUT1 2.6
52 ADIN 2.6
53 VDDA 5.2
54 ALC 0
55 NC3 0
56 NC2 0
57 NC1 0
58 RESB 5.1
59 VDD 5.1
60 EXP2 5.1
61 EXP1 5.1
62 NCO 0
63 TST1 0
64 TST2 0
32 NC5 0
31 MA1 5.1(-)
30 MA2 5.1(-)
29 MA0 5.2(2.6)
28 RASB 5.1(3.7)
27 WEB 5.1
26 MDOUT 5.1(0.3)
25 MA8 5.1(-)
24 VDD 5.1
23 MA7 5.1(-)
22 MA5 5.1(-)
21 MA4 5.1(3.1)
20 MA3 5.1(2.3)
19 MA6 5.1(-)
18 MDIN 5.1(4.7)
17 CASB 5.1(2.6)
1 PM7 0
2 PM6 0
3 PM5 0
4 PM4 0
5 PM3 0
6 PM2 0
7 PM1 0
8 PM0 0
9 VSS 0
10 XIN -
11 XOUT -
12 STA1 0
13 STA0 0
14 SA 0
15 SW 0
16 PAUSE 0
CF2501
IC2502 LC32256P-80
(4.2)5.1 1 AB
(0.3)5.1 2 DIN
5.1 3 WE
(3.6)5.1 4 RAS
(2.5)5.1 5 A0
(2.5)5.1 6 A2
(2.5)5.1 7 A1
5.1 8 Vcc
16 Vss 0
15 CAS 5.1(2.6)
14 DOUT 5.1(4.7)
13 A6 5.1(-)
12 A3 5.1(-)
11 A4 5.1(-)
10 A5 5.1(-)
9 A7 5.1(-)
7 2 VSC
5
4
3
2
1
A
B
C
D
E
F
G
H

4.28 VSC CIRCUIT BOARD

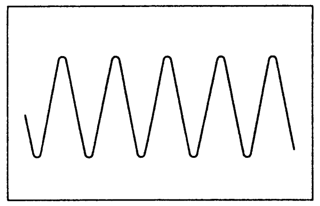

7 2
VSC PWB ASS'Y
PB10995
-01-01
UL MARK
IC2502
C2514
R2521
IC2501
C2513
CF2501
R2522
C2508
R2508
C2501
D2501
R2507
C2509
W2510
Q2502
R2520
L2501
C2505
R2506
C2507
LC2501
CN2501
R2518
R2519
R2512
R2513
Q2503
LPF2501
C2502
R2501
C2503
R2514
R2509
C2511
C2516
C2510
VSC PWB
C
B
A
1
2

COMPONENT PARTS LOCATION GUIDE <VSC>

REF.NO.	LOCATION		
CAPACITOR			
C2501	A	D	3C
C2502	B	C	2A
C2503	A	D	2A
C2504	B	C	2B
C2505	A	D	2A
C2506	B	C	2B
C2507	A	D	2A
C2508	B	C	2B
C2509	A	D	2B
C2510	A	D	1A
C2511	B	C	1A
C2512	B	C	1B
C2513	B	C	1C
C2514	B	C	2C
C2515	B	C	2A
C2516	A	D	1A
C2517	B	C	1A
CONNECTOR			
CN2501	A	D	2A
DIODE			
D2501	A	D	3B
IC			
IC2501	B	C	1B
IC2502	A	D	1D
COIL			
L2501	A	D	3A
TRANSISTOR			
Q2501	B	C	2A
Q2502	B	C	2B
Q2503	B	C	1A
RESISTOR			
R2501	B	C	2A
R2502	B	C	1A
R2503	B	C	2B
R2504	B	C	2B
R2505	B	C	2B
R2506	B	C	2A
R2507	B	C	2B
R2508	B	C	2B
R2509	B	C	1B
R2510	B	C	1B
R2511	B	C	1B
R2512	B	C	1A
R2513	B	C	1A
R2514	B	C	2A
R2515	B	C	2B
R2516	B	C	1A
R2517	B	C	1A
R2518	B	C	2A
R2519	B	C	2A
R2520	B	C	2B
R2521	B	C	1C
R2522	B	C	1C
OTHER			
CF2501	A	D	2C
LC2501	A	D	2A
LPF2501	A	D	2A

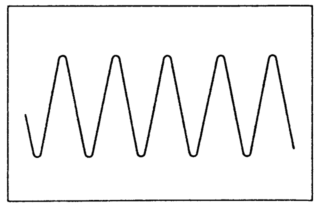
— VSC —

WF1 CN2501-2



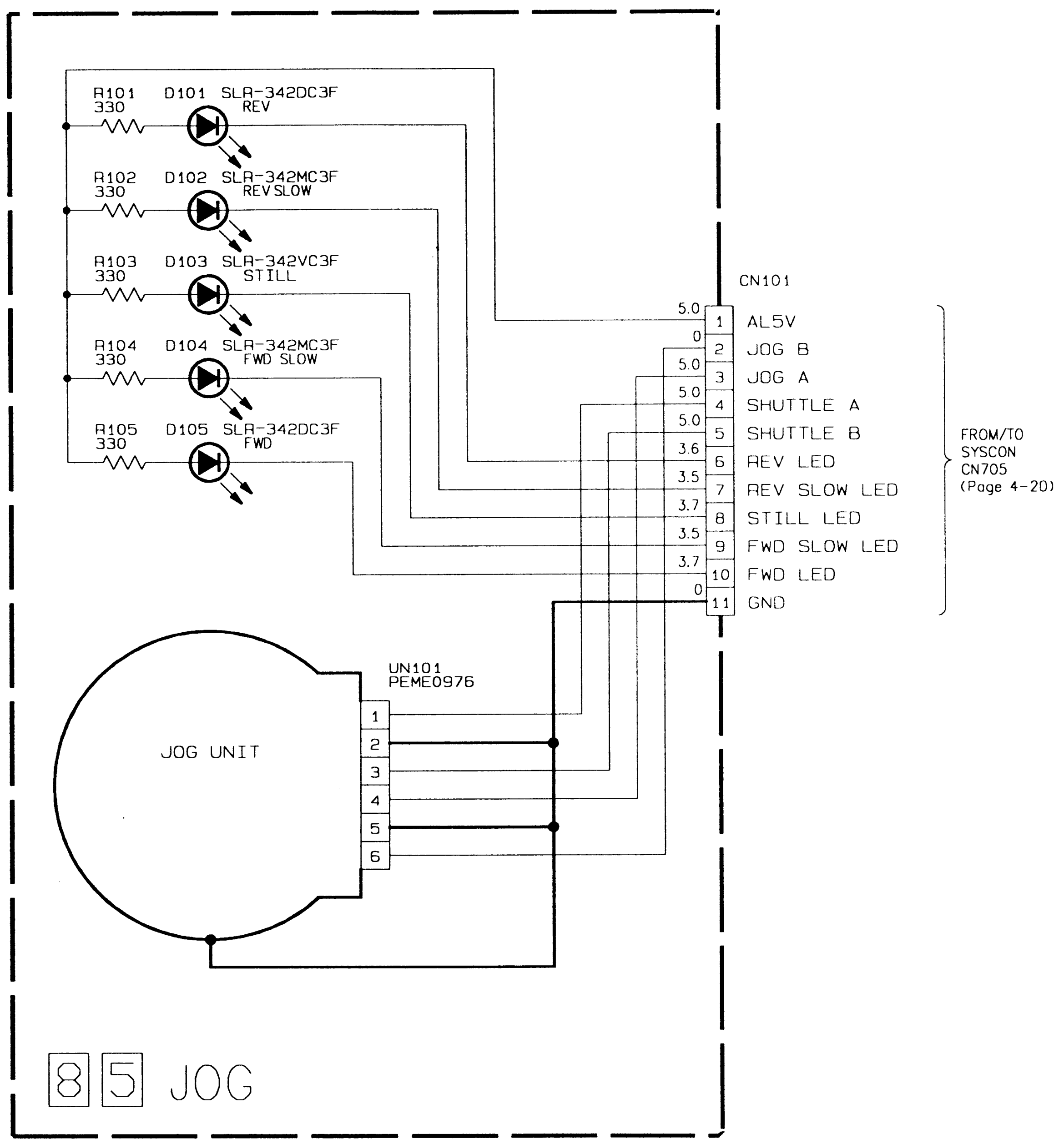
PB0.8Vp-p
5mV/1msec/DIV

WF2 IC2501-48



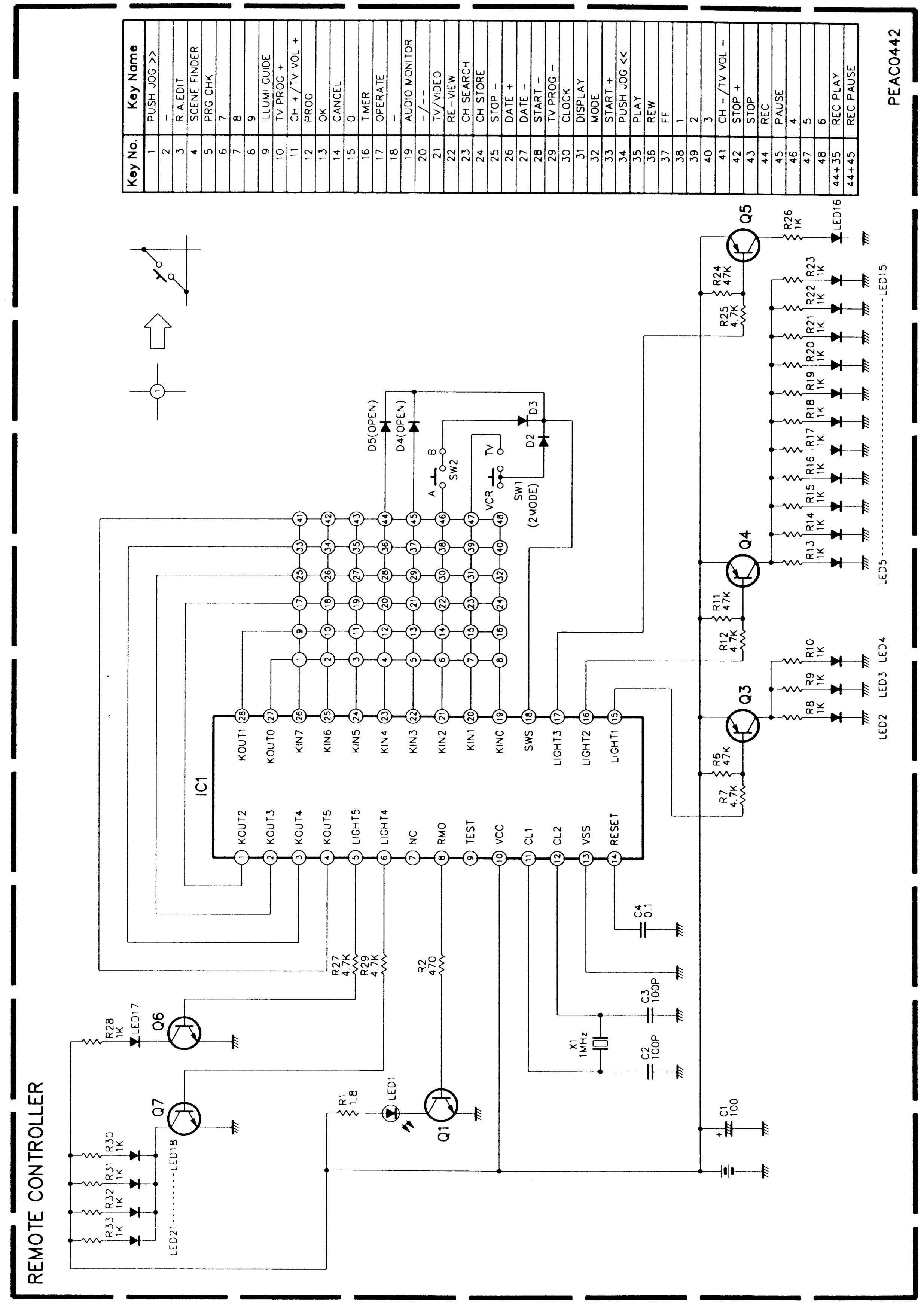
PB1.5Vp-p
50mV/1msec/DIV

4.29 JOG SCHEMATIC DIAGRAM


R101
330
D101 SLR-342DC3F
REV
R102
330
D102 SLR-342MC3F
REV SLOW
R103
330
D103 SLR-342VC3F
STILL
R104
330
D104 SLR-342MC3F
FWD SLOW
R105
330
D105 SLR-342DC3F
FWD
CN101
5.0 1 AL5V
0 2 JOG B
5.0 3 JOG A
5.0 4 SHUTTLE A
5.0 5 SHUTTLE B
3.6 6 REV LED
3.5 7 REV SLOW LED
3.7 8 STILL LED
3.5 9 FWD SLOW LED
3.7 10 FWD LED
0 11 GND
FROM/TO
SYSCON
CN705
(Page 4-20)
UN101
PEME0976
JOG UNIT
1
2
3
4
5
6
8 5 JOG
5
4
3
2
1
A
B
C
D

4.30 REMOTE CONTROL SCHEMATIC DIAGRAM

NOTES:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
   Avoid replacing individual parts.
   Replace the entire unit only.



Key No.	Key Name
1	PUSH JOG >>
2	-
3	R.A.EDIT
4	SCENE FINDER
5	PRG CHK
6	7
7	8
8	9
9	ILLUMI GUIDE
10	TV PROG +
11	CH +/TV VOL +
12	PROG
13	OK
14	CANCEL
15	0
16	TIMER
17	OPERATE
18	-
19	AUDIO MONITOR
20	-/--
21	TV/VIDEO
22	RE-VIEW
23	CH SEARCH
24	CH STORE
25	STOP -
26	DATE +
27	DATE -
28	START -
29	TV PROG -
30	CLOCK
31	DISPLAY
32	MODE
33	START +
34	PUSH JOG <<
35	PLAY
36	REW
37	FF
38	1
39	2
40	3
41	CH -/TV VOL -
42	STOP +
43	STOP
44	REC
45	PAUSE
46	4
47	5
48	6
44+35	REC PLAY
44+45	REC PAUSE

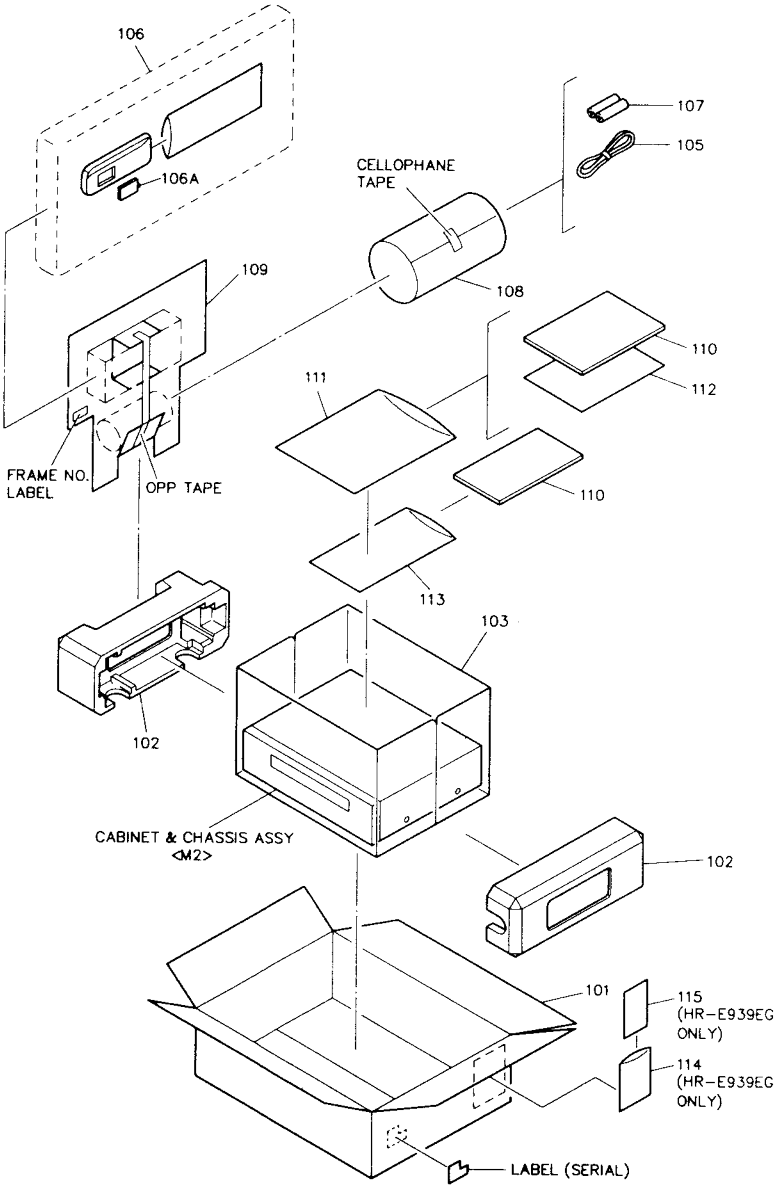
PEAC0442
REMOTE CONTROLLER
IC1
KOUT2
KOUT3
KOUT4
KOUT5
LIGHT5
LIGHT4
NC
RMO
TEST
VCC
CL1
CL2
VSS
RESET
KOUT1
KOUT0
KIN7
KIN6
KIN5
KIN4
KIN3
KIN2
KIN1
KIN0
SWS
LIGHT3
LIGHT2
LIGHT1
D5(OPEN)
D4(OPEN)
D3
D2
A
B
SW2
VCR
TV
SW1
(2MODE)
Q1
Q3
Q4
Q5
Q6
Q7
R1 1.8
R2 470
R6 47K
R7 4.7K
R8 1K
R9 1K
R10 1K
R11 47K
R12 4.7K
R13 1K
R14 1K
R15 1K
R16 1K
R17 1K
R18 1K
R19 1K
R20 1K
R21 1K
R22 1K
R23 1K
R24 47K
R25 4.7K
R26 1K
R27 4.7K
R28 1K
R29 4.7K
R30 1K
R31 1K
R32 1K
R33 1K
C1 100
C2 100P
C3 100P
C4 0.1
X1 1MHz
LED1
LED2
LED3
LED4
LED5
LED15
LED16
LED17
LED18
LED21

SECTION 5
PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING AND ACCESSORY ASSEMBLY <M1>


106
106A
107
105
CELLOPHANE TAPE
109
108
110
112
111
110
FRAME NO. LABEL
OPP TAPE
113
103
102
CABINET & CHASSIS ASSY <M2>
102
101
115 (HR-E939EG ONLY)
114 (HR-E939EG ONLY)
LABEL (SERIAL)

****

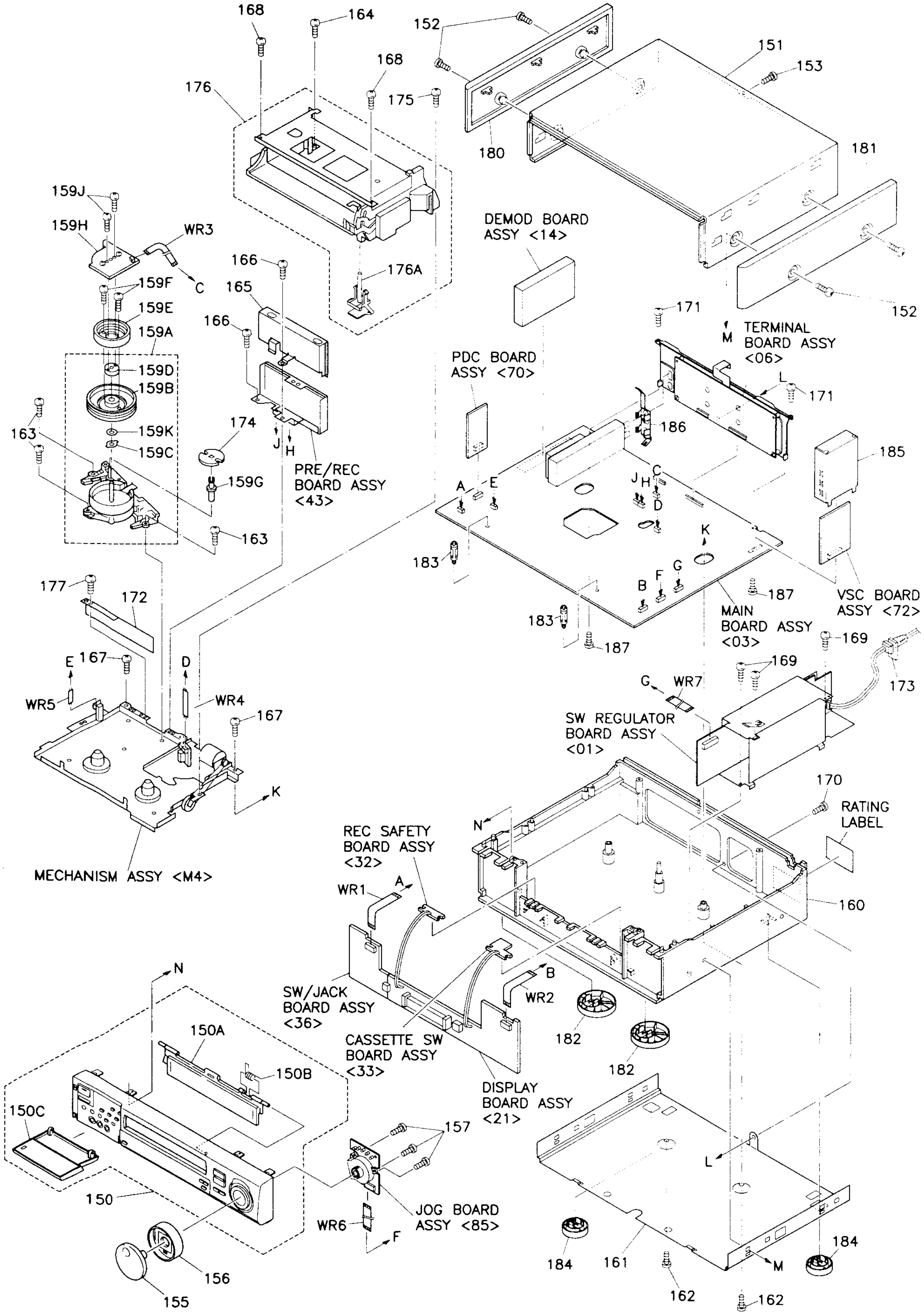
PACKING AND ACCESSORY ASSEMBLY <M1>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	101	PQ35640	PACKING CASE,E939EG
		PQ35640-2	PACKING CASE,E939EH
	102	PQ35548A-1	CUSHION ASSEMBLY
	103	PQM30021-95	POLY(FOAM)BAG
⚠	105	PEAC0300-02	RF CABLE
⚠	106	PQ21953C-3	REMOTE CONTROLLER
	106A	PQ46614-2	COVER(BATTERY)
	107	R6PRPA-2ST	BATTERY,X2
	108	PQ35364	POLY BAG
	109	PQ35575-1-1	SHEET,REMOTE CONTROLLER
⚠	110	PU30425-1905	INST BOOK(ENGLISH)
⚠		PU30425-1906	INST BOOK(GERMAN)
⚠		PU30425-1907	INST BOOK(FRENCH)
⚠		PU30425-1908	INST BOOK(ITALIAN)
⚠		PU30425-1909	INST BOOK(SPANISH)
⚠		PU30425-1910	INST BOOK(DUTCH)
⚠		PU30425-1911	INST BOOK(DANISH)
⚠		PU30425-1912	INST BOOK(FINNISH)
⚠		PU30425-1913	INST BOOK(SWEDISH)
⚠		PU30425-1914	INST BOOK(NORWEGIAN)
⚠		PU30425-1915	INST BOOK(POLISH)
⚠		PU30425-1916	INST BOOK(GREEK)
	111	PQ35364-4	POLY BAG
	112	PQ45146-110	SHEET(SPAIN),E939EH
	113	PQ35364-4	POLY BAG
	114	PQ33909	POLY BAG,E939EG
	115	BT-20135	WARRANTY CARD,E939EG

5.2 CABINET AND CHASSIS ASSEMBLY <M2>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.



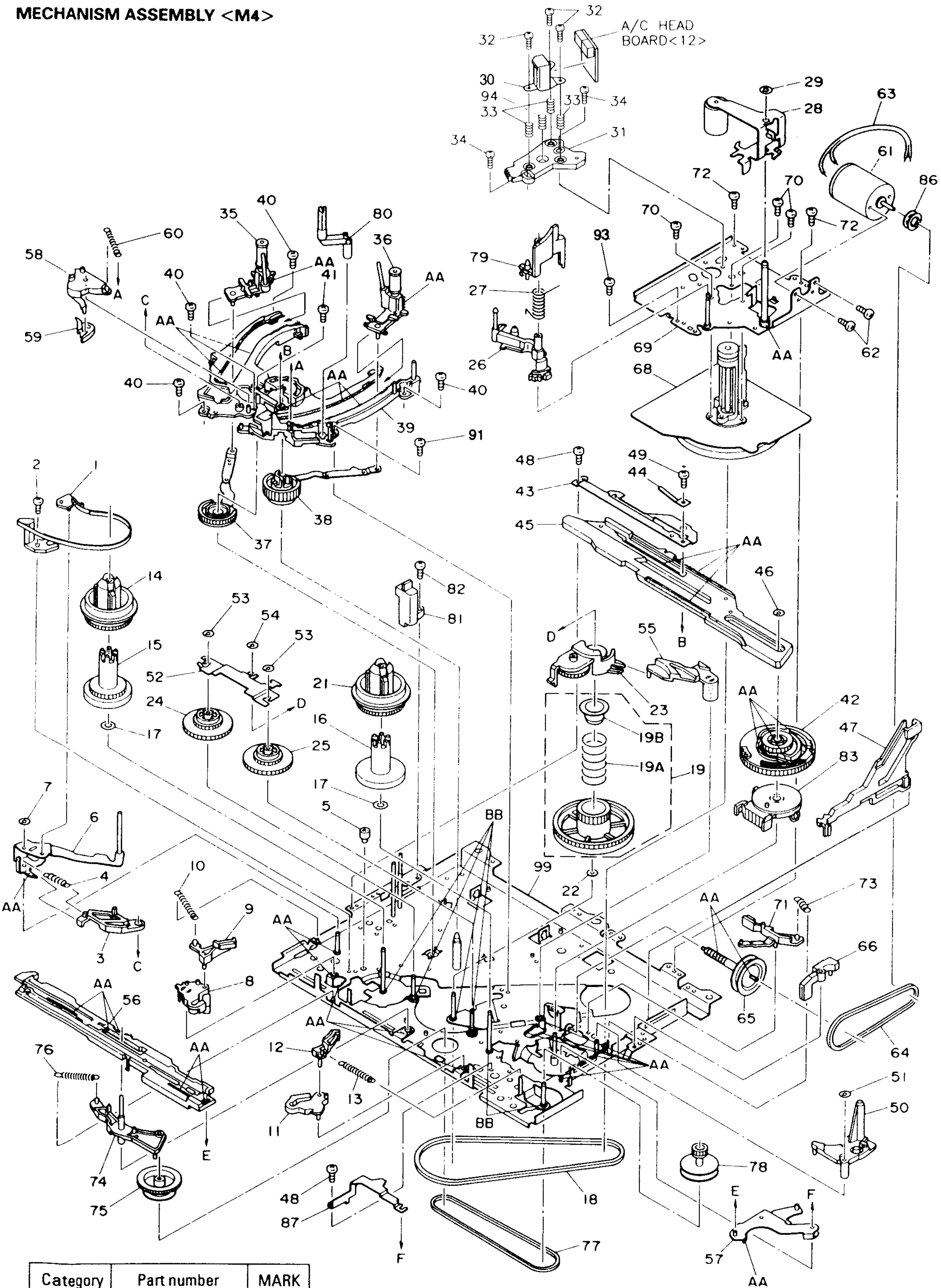
168
164
152
151
153
168
176
175
180
181
159J
159H
WR3
C
DEMOD BOARD ASSY <14>
166
176A
159F
165
159E
159A
166
171
M
TERMINAL BOARD ASSY <06>
152
159D
159B
PDC BOARD ASSY <70>
L
171
163
159K
159C
174
J
H
186
185
PRE/REC BOARD ASSY <43>
159G
A
E
J
H
C
D
163
K
183
177
172
F
G
B
187
183
187
MAIN BOARD ASSY <03>
VSC BOARD ASSY <72>
169
E
167
D
169
173
WR5
WR4
167
G
WR7
SW REGULATOR BOARD ASSY <01>
K
170
RATING LABEL
N
REC SAFETY BOARD ASSY <32>
MECHANISM ASSY <M4>
WR1
A
160
N
B
WR2
SW/JACK BOARD ASSY <36>
150A
182
CASSETTE SW BOARD ASSY <33>
150B
182
DISPLAY BOARD ASSY <21>
150C
157
L
150
JOG BOARD ASSY <85>
WR6
F
184
184
161
M
156
162
155
162

****

CABINET AND CHASSIS ASSEMBLY <M2>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	150	PQ11926H	FRONT PANEL ASSEMBLY,E939EH
		PQ11926D-5	FRONT PANEL ASSEMBLY,E939EG
	150A	PQ21873-6	CASSETTE HOUSING DOOR
	150B	PQ46448	TORSION SPRING
	150C	PQ21964D-3	DOOR ASSEMBLY,E939EG
		PQ21964H	DOOR ASSEMBLY,E939EH
⚠	151	PQ11922-5	TOP COVER
	152	PQ43930	SCREW,X4 TOP COVER(SIDE)
	153	SDSF3010M	SCREW,TOP COVER(REAR)
	155	PQ34858H	KNOB(JOG) ASSEMBLY
	156	PQ35524-3	KNOB(SHUTTLE)
	157	SDSF2608Z	SCREW,X3 JOG
	159A	PDM2301G-3	DRUM SUB ASSEMBLY
	159B	PDM3353BB	UPPER DRUM ASSEMBLY
	159C	PDM4440A	BRUSH ASSEMBLY
	159D	PDM4345A	COLLAR ASSEMBLY
	159E	PDZ0141-2	ROTOR ASSEMBLY
	159F	SPSH2660Z	SCREW,X2
	159G	PDM4311A-1	ROLLER ASSEMBLY
⚠	159H	PDZ0141-1-2	STATOR ASSEMBLY
	159J	PDM4434	SPECIAL SCREW,X2
	159K	PDM4050-9	WASHER
⚠	160	PQ11920-2-7	BOTTOM CHASSIS
⚠	161	PQ11921-1-1	BOTTOM COVER
	162	SDSF3010Z	SCREW,X2 BOTTOM COVER
	163	PQ46808	SPECIAL SCREW,X3
	164	SPST2610Z	SCREW,CASS HOUS ASSY
	165	PQ21740-1-1	SHIELD CASE,PRE
	166	SDST2606Z	SCREW,X2 PRE/REC
	167	SDSF4012Z	SCREW,X2 MECH
	168	SDSF3010Z	SCREW,X2 CASS HOUSING ASSY
	169	SDSF3010Z	SCREW,X3 SWITCH REG
	170	SDSF3010M	SCREW,TERMINAL
	171	SDSF3010Z	SCREW,X2 TERMINAL
	172	PQ46612	COVER(SHIELD),MECH
⚠	173	QMP4A10-170	POWER CORD
	174	PQ45160	INERTIA PLATE,MECH
	175	SDST2610Z	SCREW,CASS HOUS ASSY
	176	PUS29724D	CASSETTE HOUSING ASSEMBLY
	176A	PQ46359	CASSETTE SWITCH PIN
	177	SDST2606Z	SCREW,COVER
	180	PQ35561B-2	SIDE PANEL ASSEMBLY L
	181	PQ11937-2-2	SIDE PANEL R
	182	PQ46617A	FOOT ASSEMBLY,X2
	183	PEME0947-01-01	SPACER,X2 MECH
	184	PQ35504	FOOT(2),X2
	185	PQ35567	SHIELD CASE,VSC
	186	PQ21623-1-2	EARTH PLATE(RF),TUNER
	187	SDSF3008Z	SCREW,X2 TERMINAL BOARD
	WR1	PW30802-1314	WIRE,SWITCH/JACK
	WR2	PW30802-1319	WIRE,DISPLAY
	WR3	PW30803-0418	WIRE,DRUM
	WR4	PW30101-C0HH887	WIRE,A/C HEAD
	WR5	PW30101-D0HH882	WIRE,FE HEAD
	WR6	PW30802-1128	WIRE,JOG/SHUTLE
	WR7	PW30803-1620	WIRE,SWITCH REG

5.3 MECHANISM ASSEMBLY <M4>


32
A/C HEAD BOARD<12>
30
94
33
34
31
29
28
63
61
86
72
70
93
79
27
26
69
62
68
60
58
59
35
40
80
36
41
AA
A
B
C
39
91
2
1
14
15
17
37
38
82
81
53
54
52
24
25
21
16
D
48
49
44
43
45
46
55
23
19B
19A
19
42
47
83
22
99
7
6
4
10
9
8
3
5
BB
73
71
66
65
64
56
76
12
13
11
74
75
51
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E
F
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57

Category	Part number	MARK
Grease	KYODO-SH-P	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

MECHANISM ASSEMBLY <M4>

#△	REF No.	PART No.	PART NAME, DESCRIPTION
	1	PQ46298A-5	TENSION BAND ASSEMBLY
	2	SDST2608Z	SCREW
	3	PQ35012-1-3	TENSION ARM LEVER
	4	PQM30001-385109	TENSION SPRING
	5	PQ46302-1-3	ADJUST PIN
	6	PQ46303A-8	TENSION ARM ASSEMBLY
	7	PQM30017-47	SLIT WASHER
	8	PQ46305B-3	MAIN BRAKE ASSEMBLY(SUPPLY)
	9	PQ46306A-3	SUB BRAKE ASSEMBLY(SUPPLY)
	10	PQM30001-393	TENSION SPRING
	11	PQ46308A-5	MAIN BRAKE ASSEMBLY(TAKE UP)
	12	PQ46309A-4	SUB BRAKE ASSEMBLY(TAKE UP)
	13	PQM30001-389102	TENSION SPRING
	14	PQ46535A-2	REEL DISK ASSEMBLY(SUPPLY)
	15	PQ35014-1-1	SLIT DISK(SUPPLY)
	16	PQ21683-2-14	REEL DISK(TAKE UP)
	17	PQM30018-76	SPACER,X2
	18	PQM30003-38	BELT(CAPSTAN)
	19	PQ46497B-2	PULLEY ASSEMBLY
	19A	PQM30002-233	COMPRESSION SPRING
	19B	PQ46311	SPRING CAP
	21	PQ35015-1-1	SLIT DISK(TAKE UP)
	22	PQM30018-69	SPACER
	23	PQ46312B-9	IDLER ARM ASSEMBLY
	24	PQ46316A-4	CLUTCH UNIT(SUPPLY)
	25	PQ46323A-1	CLUTCH UNIT(TAKE UP)
	26	PQ46325C-9	GUIDE ARM ASSEMBLY
	27	PQ46326-2	TORSION SPRING
	28	PQ46327A-3	PINCH ROLLER ARM ASSEMBLY
	29	PQM30017-24	SLIT WASHER,P LEVER
	30	PEHE0182	AUDIO CONTROL HEAD
	31	PQ35481	HEAD BASE
	32	SPST2608Z	SCREW,X3
	33	PQM30002-238	COMPRESSION SPRING,X3
	34	SDSP2606Z	SCREW,X2
	35	PQ46330A-3	POLE BASE ASSEMBLY(SUPPLY)
	36	PQ46331A-1	POLE BASE ASSEMBLY(TAKE UP)
	37	PQ46332A-3	LOADING ARM ASSEMBLY(SUPPLY)
	38	PQ46337C	LOADING ARM ASSEMBLY(TAKE UP)
	39	PQ11657-1-9	GUIDE RAIL
	40	SPST2608Z	SCREW,X4
	41	SDST2612Z	SCREW
	42	PQ21684-1-3	CONTROL CAM
	43	PQ35138-1-2	CONTROL BRACKET
	44	PQ46423	EARTH PLATE
	45	PQ11658-1-15	CONTROL PLATE
	46	PQM30017-8	SLIT WASHER
	47	PQ21685-2-9	PINCH PLATE
	48	SPST2606Z	SCREW,X2
	49	SPSF2608M	SCREW
	50	PQ46342D-10	LEVER ASSEMBLY
	51	PQM30017-8	SLIT WASHER
	52	PQ35083-2	REEL BRACKET
	53	PQM30017-51	SLIT WASHER,X2
	54	Q03093-830	WASHER
	55	PQ35026-1-7	IDLER LEVER
	56	PQ11659-1-12	SLIDE PLATE
	57	PQ46344A-2	CHANGE LEVER ASSEMBLY
	58	PQ21686-1-3	TAKE UP LEVER
	59	PQ46345-1-2	TAKE UP HEAD
	60	PQM30001-387106	TENSION SPRING
△	61	PU60628-3-2	LOADING MOTOR
	62	SPSP3003Z	SCREW,X2
	63	PW30101-80AJ632	WIRE
	64	PQM30003-39	BELT
	65	PQ46395B	WORM GEAR ASSEMBLY
	66	PQ21699-1-2	WORM BEARING
△	68	PU61435-1-6	CAPSTAN MOTOR
	69	PQ46347D-14	SUB DECK ASSEMBLY
	70	SPSG2608Z	SCREW,X3
	71	PQ46356C-3	CAPSTAN BRAKE ASSEMBLY
	72	SPST2606Z	SCREW,X2
	73	PQM30001-384101	TENSION SPRING,CAPSTAN BRAKE
	74	PQ46353A-2	CHANGE ARM ASSEMBLY
	75	PQ46354	CHANGE GEAR
	76	PQM30001-386	TENSION SPRING
	77	PQM30003-40	BELT
	78	PQ46355	CASSETTE GEAR
	79	PQ35030-1-5	LID GUIDE
	80	PQ21689-2	LED PRISM
	81	PEHE0237	FULL ERASE HEAD
	82	SDST2610Z	SCREW
	83	PU61432-1-1	ROTARY ENCODER
	86	PQ43546-1-2	MOTOR PULLEY
	87	PQ35217-1-2	CONTROL BRACKET 2
	91	SDST2608Z	SCREW
	93	SDST2608Z	SCREW
	94	PQ46630	COMPRESSION SPRING
	99	PQ21680K	MAIN DECK ASSEMBLY

5.4 ELECTRICAL PARTS LIST

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SWITCH REG BOARD ASSEMBLY <01>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PW1	PB11001B	SWITCH REG BOARD ASSEMBLY	
	Q1	2SK2632-CB14	FE TRANSISTOR	
		or 2SK2129-LT	FE TRANSISTOR	
	Q2	2SC3616(ML)	TRANSISTOR	
	Q51	2SC1740S(RS)	TRANSISTOR	
		or 2SC3199(GB)-TJK	TRANSISTOR	
	D1	1SR139-600-T2	DIODE	
	D2	1SR139-600-T2	DIODE	
	D3	1SR139-600-T2	DIODE	
	D4	1SR139-600-T2	DIODE	
	D5	RD27ES-T1B2	ZENER DIODE	
		or UZ27BSB	ZENER DIODE	
		or MTZJ27(B)	ZENER DIODE	
	D6	10ELS4	FR DIODE	
		or 1SR153-400-T2	FR DIODE	
		or AU01	FR DIODE	
		or ERA18-04-T2	FR DIODE	
	D7	10ELS4	FR DIODE	
		or 1SR153-400-T2	FR DIODE	
		or AU01	FR DIODE	
		or ERA18-04-T2	FR DIODE	
	D9	1N4148M	DIODE	
		or MA165	DIODE	
		or 1SS133	DIODE	
	D51	AU01Z	FR DIODE	
		or ERA18-02-T2	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
		or 10ELS2	FR DIODE	
	D52	FML-12S	FR DIODE	
		or MA644	FR DIODE	
		or YG901C2	FR DIODE	
		or FCF06A20	FR DIODE	
	D53	FMB-24	BARRIER DIODE	
		or F5KQ40B	BARRIER DIODE	
		or MA7D49	SB DIODE	
		or YG801C04	SB DIODE	
	D55	RD15ES-T1B1	ZENER DIODE	
		or UZ15BSA	ZENER DIODE	
		or MTZJ15(A)	ZENER DIODE	
	D57	AU01Z	FR DIODE	
		or ERA18-02-T2	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
		or 10ELS2	FR DIODE	
	D60	AU01	FR DIODE	
		or ERA18-04-T2	FR DIODE	
		or 1SR153-400-T2	FR DIODE	
		or 10ELS4	FR DIODE	
	D61	AU01Z	FR DIODE	
		or ERA18-02-T2	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
		or 10ELS2	FR DIODE	
	D63	RD30ES-T1B1	ZENER DIODE	
		or MTZJ30(A)	ZENER DIODE	
		or UZ30BSA	ZENER DIODE	
	D65	1N4148M	DIODE	
		or 1SS133	DIODE	
		or MA165	DIODE	
	D66	RD10ES-T1B3	ZENER DIODE	
		or MTZJ10(C)	ZENER DIODE	
		or UZ10BSC	ZENER DIODE	
	D67	RD6.2ES-T1B3	ZENER DIODE	
		or MTZJ6.2C	ZENER DIODE	
		or UZ6.2BSC	ZENER DIODE	
	R1	QRD161J-224	RESISTOR	220kΩ,1/6W
	R2	QRD161J-224	RESISTOR	220kΩ,1/6W
	R3	QRD161J-683	RESISTOR	68kΩ,1/6W
	R4	QRD121J-331S	RESISTOR	330Ω,1/2W
	R5	QRX014J-R39	MF RESISTOR	0.39Ω,1W
	R6	QRD161J-681	RESISTOR	680Ω,1/6W
	R8	QRG029J-154G	OMF RESISTOR	150kΩ,2W
	R9	QRD161J-224	RESISTOR	220kΩ,1/6W
	R10	QRD161J-222	RESISTOR	2.2kΩ,1/6W
	R11	QRD161J-152	RESISTOR	1.5kΩ,1/6W
	R12	QRG029J-154G	OMF RESISTOR	150kΩ,2W
	R55	QRG02DJ-222X	OMF RESISTOR	2.2kΩ,2W
⚠	R56	QRZ0077-470X	FUSIBLE RESISTOR	47Ω,1/4W
	R57	QRX014J-8R2Z	MF RESISTOR	8.2Ω,1W
	R59	QRV144F-2211AY	CMF RESISTOR	2.21kΩ,1/4W
	R60	QRV144F-3481AY	CMF RESISTOR	3.48kΩ,1/4W
	R61	QRD161J-122	RESISTOR	1.2kΩ,1/6W
	R62	QRD161J-471	RESISTOR	470Ω,1/6W
	R64	QRG02DJ-182X	OMF RESISTOR	1.8kΩ,2W
⚠	C1	QFZ9022-683	F CAPACITOR	0.068µF
⚠	C3	QFZ9022-333	F CAPACITOR	0.033µF
⚠	C4	QCZ9026-222	CAPACITOR	0.0022µF
	C5	QETC1HM-225	E CAPACITOR	2.2µF,50V
	C6	QFLA1HJ-183Z	F CAPACITOR	0.018µF,50V
	C7	QCZ0212-472	CAPACITOR	0.0047µF,1kV
	C8	QCBB1HJ-271	CAPACITOR	270pF,50V
	C9	QFV11HJ-104	F CAPACITOR	0.1µF,50V
	C10	PECA0738-686	E CAPACITOR	68µF
	C11	QCZ0302-330Z	CAPACITOR	33pF
	C51	QEMR1AM-107	E CAPACITOR	100µF,10V
	C53	QEMQ1AM-687	E CAPACITOR	680µF,10V
	C54	QEMQ1CM-827	E CAPACITOR	820µF,16V
	C55	QEMN1EM-187	E CAPACITOR	180µF,25V
	C59	QETC1JM-226	E CAPACITOR	22µF,63V
	C60	QETC1HM-226	E CAPACITOR	22µF,50V
	C61	QFLA1HJ-103Z	F CAPACITOR	0.01µF,50V
	C64	QETC1CM-337	E CAPACITOR	330µF,16V
	C65	QETC1AM-227	E CAPACITOR	220µF,10V
	C67	QETC1HM-474	E CAPACITOR	0.47µF,50V
	L52	PELN0687	COIL	
	L53	PELN0687	COIL	
	K1	PELN0662-Z	FERRATE BEADS	
⚠	PC1	PC123FY2	PH COUPLER	
⚠	T1	PELN1173	SW TRANS	
	ET1	PQ44695-1-1	EARTH PLATE,X2	
⚠	FC1	PEMC0965-Z	FUSE CLIP,F1	
⚠	FC2	PEMC0965-Z	FUSE CLIP,F2	
⚠	HS1	PQ45788-1-1	HEAT SINK	
⚠	LF1	PELN0885	LINE FILTER	
⚠	LF2	QQR0001-001	LINE FILTER	
	OT1	SDST3006Z	SCREW	
	OT2	SDST3006Z	SCREW,X5	
	SD1	PQ21948	SHIELD CASE	
⚠	CN1	PU60250-2	CONNECTOR,(1-2)AC IN	
	CN2	PEMC1101-116	CONNECTOR,(1-16)MAIN	
⚠	F1	QMF51E2-1R25J1	FUSE	T1.2A

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MAIN BOARD ASSEMBLY <03>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PW1	PB11012A	MAIN BOARD ASSEMBLY,E939EG
PW1	PB11012B	MAIN BOARD ASSEMBLY,E939EH
IC1	HA118203AF	IC
IC2	MSM7470-79MS-XE	IC
IC401	JCP0056	IC
IC402	BA6138	IC
IC403	AN3969K	IC
IC404	MC14053BF	IC
IC405	BA15218F-XE	IC
IC701	HD6433929TA69F	IC
IC702	24LC08B/P	IC
	or X24C08-10P	IC
	or AT24C08-10PC	IC
IC703	S-80728AN-Z	IC
	or RE5VL28A	IC
IC704	TA7291S	IC
IC705	M50253P	IC
	or BU2090	IC
IC706	M66007P	IC
IC851	M37471M8-367FP	IC
IC852	TA7291S	IC
IC853	XRA10358	IC
IC1001	BA15218F-XE	IC
IC1101	BU2885BS	IC
	or BU2884BS	IC
IC1301	LC74783-9153	IC (OSD)
Q1	2SC4081(QRS)	TRANSISTOR
	or 2SD1819A(QRS)	TRANSISTOR
Q2	2SC4081(QRS)	TRANSISTOR
	or 2SD1819A(QRS)	TRANSISTOR
Q4	DTC144WU	TRANSISTOR
	or UN521E	TRANSISTOR
Q9	DTA144WU	TRANSISTOR
	or UN511E	TRANSISTOR
Q15	2SA1576(QRS)	TRANSISTOR
	or 2SB1218A(QRS)	TRANSISTOR
Q16	DTC144WU	TRANSISTOR
	or UN521E	TRANSISTOR
Q18	DTC144WU	TRANSISTOR
	or UN521E	TRANSISTOR
Q20	DTC114EU	TRANSISTOR
	or UN5211	TRANSISTOR
Q21	2SC4081(QRS)	TRANSISTOR
	or 2SD1819A(QRS)	TRANSISTOR
Q24	2SC4081(QRS)	TRANSISTOR
	or 2SD1819A(QRS)	TRANSISTOR
Q252	2SA1576(QRS)	TRANSISTOR
	or 2SB1218A(QRS)	TRANSISTOR
Q258	2SA1576(QRS)	TRANSISTOR
	or 2SB1218A(QRS)	TRANSISTOR
Q304	DTA114EU	TRANSISTOR
	or UN5111	TRANSISTOR
Q305	2SC4081(QRS)	TRANSISTOR
	or 2SD1819A(QRS)	TRANSISTOR
Q306	2SC4081(QRS)	TRANSISTOR
	or 2SD1819A(QRS)	TRANSISTOR
Q307	2SA1576(QR)	TRANSISTOR
Q308	2SA1576(QR)	TRANSISTOR
Q309	DTA114EU	TRANSISTOR
	or UN5111	TRANSISTOR
Q310	2SC4081(QRS)	TRANSISTOR
	or 2SD1819A(QRS)	TRANSISTOR
Q311	2SC4081(QRS)	TRANSISTOR
	or 2SD1819A(QRS)	TRANSISTOR
Q314	DTA144WU	TRANSISTOR
	or UN511E	TRANSISTOR
Q351	DTC114EU	TRANSISTOR
	or UN5211	TRANSISTOR
Q352	DTC114EU	TRANSISTOR
	or UN5211	TRANSISTOR
Q701	2SC4081(QRS)	TRANSISTOR
	or 2SD1819A(QRS)	TRANSISTOR
Q702	DTC114WU	TRANSISTOR
Q703	DTC114EU	TRANSISTOR
	or UN5211	TRANSISTOR
Q704	PN268VI	PH TRANSISTOR
Q705	PN268VI	PH TRANSISTOR
Q708	DTC114EU	TRANSISTOR
	or UN5211	TRANSISTOR
Q710	2SC4081(QRS)	TRANSISTOR
	or 2SD1819A(QRS)	TRANSISTOR
Q851	DTC144WU	TRANSISTOR
	or UN521E	TRANSISTOR
Q852	DTC144WU	TRANSISTOR
	or UN521E	TRANSISTOR
Q853	DTC144WU	TRANSISTOR
	or UN521E	TRANSISTOR
Q951	2SD2061(F)	TRANSISTOR
Q952	2SC4081(RS)	TRANSISTOR
Q953	2SC3616(MLK)	TRANSISTOR
Q954	DTA114EU	TRANSISTOR
Q955	2SD2144S(UVW)	TRANSISTOR
Q956	2SB1256	TRANSISTOR
Q957	DTC114TU	TRANSISTOR
Q1002	2SB810H,J	TRANSISTOR
Q1003	2SC3068	TRANSISTOR
Q1004	2SA1576(QRS)	TRANSISTOR
Q1005	2SC4081(RS)	TRANSISTOR
Q1008	2SA1576(QRS)	TRANSISTOR
Q1011	2SC4081(RS)	TRANSISTOR
Q1101	DTC114EU	TRANSISTOR
	or UN5211	TRANSISTOR
Q1301	2SC4081(QRS)	TRANSISTOR
	or 2SD1819A(QRS)	TRANSISTOR
Q1302	2SA1576(QRS)	TRANSISTOR
	or 2SB1218A(QRS)	TRANSISTOR
Q1303	DTC144WU	TRANSISTOR
	or UN521E	TRANSISTOR
Q1304	DTC144WU	TRANSISTOR
	or UN521E	TRANSISTOR
Q1305	DTC144WU	TRANSISTOR
	or UN521E	TRANSISTOR
Q1401	2SA1576(QRS)	TRANSISTOR
	or 2SB1218A(QRS)	TRANSISTOR
Q1402	2SA1576(QRS)	TRANSISTOR
	or 2SB1218A(QRS)	TRANSISTOR
Q1951	2SA1576(QRS)	TRANSISTOR
	or 2SB1218A(QRS)	TRANSISTOR

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
Q1952	2SA1576(QRS)	TRANSISTOR	
	or 2SB1218A(QRS)	TRANSISTOR	
D5	1N4148M	DIODE	
	or 1SS133	DIODE	
D8	1N4148M	DIODE	
	or 1SS133	DIODE	
D10	1N4148M	DIODE	
	or 1SS133	DIODE	
D11	1N4148M	DIODE	
	or 1SS133	DIODE	
D254	1N4148M	DIODE	
	or 1SS133	DIODE	
D301	1N4148M	DIODE	
	or 1SS133	DIODE	
D452	1N4148M	DIODE	
	or 1SS133	DIODE	
D453	1N4148M	DIODE	
	or 1SS133	DIODE	
D514	1N4148M	DIODE	
	or 1SS133	DIODE	
D515	1N4148M	DIODE	
	or 1SS133	DIODE	
D701	RD9.1ES-T1B2	ZENER DIODE	
	or MTZJ9.1(B)	ZENER DIODE	
D702	11ES2	DIODE	
D704	11ES2	DIODE	
D705	1N4148M	DIODE	
	or MA165	DIODE	
	or 1SS133	DIODE	
D706	1N4148M	DIODE	
	or 1SS133	DIODE	
	or MA165	DIODE	
D710	SIR-381SB3FM	LE DIODE	
	or SIR-381SB3FX1M	LE DIODE	
D714	1N4148M	DIODE	
	or 1SS133	DIODE	
	or MA165	DIODE	
D715	1N4148M	DIODE	
	or MA165	DIODE	
	or 1SS133	DIODE	
D717	1N4148M	DIODE	
D962	RD5.1JSB2	DIODE	
	or MA4051N(M)	ZENER DIODE	
D963	1SS133	DIODE	
	or MA165	DIODE	
	or 1N4148M	DIODE	
D964	11ES2	DIODE	
	or ERA15-02	DIODE	
D1001	MTZ10D	ZENER DIODE	
D1002	MTZJ33(C)	ZENER DIODE	
	or UZ33BSC	DIODE	
D1004	1SS133	DIODE	
	or 1N4148M	DIODE	
	or MA165	DIODE	
D1005	1SS133	DIODE	
	or MA165	DIODE	
	or 1N4148M	DIODE	
R1	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R2	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R3	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R4	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R5	QRSA08J-821YN	RESISTOR	820Ω,1/10W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R6	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R8	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R9	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
R10	QRSA08J-182YN	RESISTOR	1.8kΩ,1/10W
R11	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R12	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
R13	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R14	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
R15	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R16	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R17	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R18	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R19	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R22	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R25	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R26	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R31	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R32	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R34	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
R35	QRSA08J-563YN	RESISTOR	56kΩ,1/10W
R36	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R37	QRSA08J-563YN	RESISTOR	56kΩ,1/10W
R40	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R43	QRSA08J-225YN	RESISTOR	2.2MΩ,1/10W
R45	QRSA08J-395YN	RESISTOR	3.9MΩ,1/10W
R46	QRSA08J-822YN	RESISTOR	8.2kΩ,1/10W
R47	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R49	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R50	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R51	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R52	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R53	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
R57	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R58	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R59	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
R62	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R63	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R64	QRSA08J-272YN	RESISTOR	2.7kΩ,1/10W
R65	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R66	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R67	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R69	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R70	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R73	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R272	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R280	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R281	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R284	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
R303	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R307	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
R308	QRSA08J-224YN	RESISTOR	220kΩ,1/10W
R309	QRSA08J-181YN	RESISTOR	180Ω,1/10W
R310	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R312	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R313	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R314	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R316	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
R317	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R318	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R319	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R320	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R321	QRSA08J-473YN	RESISTOR	47kΩ,1/10W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R322	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R323	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R324	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
R325	QRSA08J-3R3YN	RESISTOR	3.3Ω,1/10W
R326	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R327	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R330	QRSA08J-151YN	RESISTOR	150Ω,1/10W
R331	QRSA08J-3R3YN	RESISTOR	3.3Ω,1/10W
R332	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
R339	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R340	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R341	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R342	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R344	QRSA08J-224YN	RESISTOR	220kΩ,1/10W
R351	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R353	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R354	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R355	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R401	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R403	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R406	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R407	QRSA08J-511YN	RESISTOR	510Ω,1/10W
R408	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R409	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
R410	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R411	NRVA62B-153N	RESISTOR	15kΩ,1/16W
R412	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
R415	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R416	QRSA08J-274YN	RESISTOR	270kΩ,1/10W
R417	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R418	NRVA62B-113N	RESISTOR	11kΩ,1/16W
R419	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R420	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
R421	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R422	QRSA08J-511YN	RESISTOR	510Ω,1/10W
R423	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R426	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R428	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R429	QRSA08J-183YN	RESISTOR,E939EG	18kΩ,1/10W
R430	QRSA08J-222YN	RESISTOR,E939EH	2.2kΩ,1/10W
	QRSA08J-393YN	RESISTOR,E939EG	39kΩ,1/10W
R432	QRSA08J-222YN	RESISTOR,E939EH	2.2kΩ,1/10W
	QRSA08J-393YN	RESISTOR,E939EG	39kΩ,1/10W
R433	QRSA08J-183YN	RESISTOR,E939EG	18kΩ,1/10W
R434	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R435	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R436	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R437	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R438	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R440	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R442	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R443	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R455	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R456	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R457	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R458	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R461	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R462	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R463	QRSA08J-222YN	RESISTOR,E939EH	2.2kΩ,1/10W
	QRSA08J-393YN	RESISTOR,E939EG	39kΩ,1/10W
R464	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R465	QRSA08J-183YN	RESISTOR	18kΩ,1/10W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R466	QRSA08J-183YN	RESISTOR,E939EG	18kΩ,1/10W
R467	QRSA08J-183YN	RESISTOR,E939EG	18kΩ,1/10W
R468	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R469	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R470	QRSA08J-222YN	RESISTOR,E939EH	2.2kΩ,1/10W
	QRSA08J-393YN	RESISTOR,E939EG	39kΩ,1/10W
R471	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R472	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R473	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R474	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R475	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R476	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R477	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R478	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R479	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R480	QRSA08J-0R0Y	RESISTOR,E939EG	0Ω,1/10W
	QRSA08J-393YN	RESISTOR,E939EH	39kΩ,1/10W
R482	QRSA08J-183YN	RESISTOR,E939EH	18kΩ,1/10W
R483	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R484	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R485	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R487	QRSA08J-393YN	RESISTOR,E939EH	39kΩ,1/10W
	QRSA08J-0R0Y	RESISTOR,E939EG	0Ω,1/10W
R488	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R490	QRSA08J-183YN	RESISTOR,E939EH	18kΩ,1/10W
R491	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R492	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R493	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R494	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R531	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
R532	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R533	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R534	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R535	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R701	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R702	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R703	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R704	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R705	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R706	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R707	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R708	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R709	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R710	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R712	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R713	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R714	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R715	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R716	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R717	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R718	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R719	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R720	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R721	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R722	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R723	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R724	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R725	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R726	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R727	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R728	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R729	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W

△ REF No.	PART No.	PART NAME, DESCRIPTION		#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R730	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W	R801	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R731	QRSA08J-221YN	RESISTOR	220Ω,1/10W	R802	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R732	QRSA08J-103YN	RESISTOR	10kΩ,1/10W	R803	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R733	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W	R804	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R734	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W	R805	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R735	QRSA08J-102YN	RESISTOR	1kΩ,1/10W	R806	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R736	QRSA08J-102YN	RESISTOR	1kΩ,1/10W	R807	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R738	QRSA08J-102YN	RESISTOR	1kΩ,1/10W	R808	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R739	QRSA08J-561YN	RESISTOR	560Ω,1/10W	R809	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R740	QRSA08J-331YN	RESISTOR	330Ω,1/10W	R810	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R741	QRSA08J-102YN	RESISTOR	1kΩ,1/10W	R811	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R742	QRSA08J-331YN	RESISTOR	330Ω,1/10W	R812	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R743	QRSA08J-102YN	RESISTOR	1kΩ,1/10W	R814	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R744	QRSA08J-102YN	RESISTOR	1kΩ,1/10W	R815	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R745	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W	R816	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R746	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W	R817	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R747	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W	R819	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R748	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W	R820	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R749	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W	R821	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R750	QRSA08J-103YN	RESISTOR	10kΩ,1/10W	R827	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R751	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W	R828	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R752	QRSA08J-102YN	RESISTOR	1kΩ,1/10W	R829	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R753	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W	R830	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R754	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W	R831	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R755	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W	R833	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R756	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W	R834	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R757	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W	R835	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R758	QRSA08J-102YN	RESISTOR	1kΩ,1/10W	R836	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R759	QRSA08J-102YN	RESISTOR	1kΩ,1/10W	R837	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R761	QRSA08J-102YN	RESISTOR	1kΩ,1/10W	R851	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R762	QRSA08J-221YN	RESISTOR	220Ω,1/10W	R852	QRSA08J-333YN	RESISTOR	33kΩ,1/10W
R763	QRSA08J-221YN	RESISTOR	220Ω,1/10W	R854	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R765	QRSA08J-103YN	RESISTOR	10kΩ,1/10W	R855	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R766	QRD161J-474	RESISTOR	470kΩ,1/6W	R858	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R767	QRSA08J-334YN	RESISTOR	330kΩ,1/10W	R859	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R769	QRD161J-103	RESISTOR	10kΩ,1/6W	R861	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R770	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W	R863	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R771	QRSA08J-104YN	RESISTOR	100kΩ,1/10W	R864	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
R772	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W	R865	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R773	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W	R866	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R774	QRSA08J-105YN	RESISTOR	1MΩ,1/10W	R867	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R775	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W	R868	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R776	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W	R869	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R777	QRSA08J-102YN	RESISTOR	1kΩ,1/10W	R870	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R778	QRSA08J-103YN	RESISTOR	10kΩ,1/10W	R872	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R779	QRSA08J-103YN	RESISTOR	10kΩ,1/10W	R876	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R780	QRSA08J-103YN	RESISTOR	10kΩ,1/10W	R877	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R781	QRSA08J-103YN	RESISTOR	10kΩ,1/10W	R878	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R782	QRSA08J-103YN	RESISTOR	10kΩ,1/10W	R879	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R785	QRSA08J-221YN	RESISTOR	220Ω,1/10W	R880	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R786	QRD161J-750	RESISTOR	75Ω,1/6W	R881	QRSA08J-333YN	RESISTOR	33kΩ,1/10W
R787	QRSA08J-221YN	RESISTOR	220Ω,1/10W	R882	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R788	QRSA08J-333YN	RESISTOR	33kΩ,1/10W	R883	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
R789	QRSA08J-333YN	RESISTOR	33kΩ,1/10W	R884	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R790	QRSA08J-103YN	RESISTOR	10kΩ,1/10W	R886	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R791	QRSA08J-104YN	RESISTOR	100kΩ,1/10W	R887	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R792	QRSA08J-271YN	RESISTOR	270Ω,1/10W	R889	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R793	QRSA08J-681YN	RESISTOR	680Ω,1/10W	R890	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R794	QRSA08J-104YN	RESISTOR	100kΩ,1/10W	R958	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R796	QRSA08J-102YN	RESISTOR	1kΩ,1/10W	R959	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R797	QRSA08J-102YN	RESISTOR	1kΩ,1/10W	R960	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R800	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W	R961	QRSA08J-103YN	RESISTOR	10kΩ,1/10W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R962	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R963	QRD161J-511	RESISTOR	510Ω,1/6W
R964	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R965	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R966	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R967	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R968	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
VR401	QVPA606-223Z	V RESISTOR,EE LEVEL	
R1001	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R1002	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
R1003	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R1004	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R1005	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1006	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R1007	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R1008	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
R1009	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1010	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
R1011	QRD161J-562	RESISTOR,E939EH	5.6kΩ,1/6W
R1012	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R1016	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1021	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R1022	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R1023	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1024	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
R1026	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R1030	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1036	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1038	QRSA08J-152YN	RESISTOR,E939EH	1.5kΩ,1/10W
R1102	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
R1103	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1105	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1106	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1107	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
R1108	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R1109	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
R1112	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R1113	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1114	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1301	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R1302	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R1303	QRSA08J-151YN	RESISTOR	150Ω,1/10W
R1304	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R1306	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R1307	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1308	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1309	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1310	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1311	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R1401	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
R1402	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
R1403	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1404	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R1405	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R1406	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1407	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R1408	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R1409	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1410	QRSA08J-200YN	RESISTOR	20Ω,1/10W
R1411	QRSA08J-560YN	RESISTOR	56Ω,1/10W
R1412	QRD161J-221	RESISTOR	220Ω,1/6W
R1951	QRSA08J-333YN	RESISTOR	33kΩ,1/10W
R1952	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R1953	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1954	QRSA08J-683YN	RESISTOR	68kΩ,1/10W
R1955	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1956	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R1957	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
C1	QCYA1HK-103	CAPACITOR	0.01μF,50V
C2	QCYA1EK-104	CAPACITOR	0.1μF,25V
C3	QCYA1EK-104	CAPACITOR	0.1μF,25V
C5	QCYA1HK-103	CAPACITOR	0.01μF,50V
C6	QEKJ1CM-106	E CAPACITOR	10μF,16V
C7	QCYA1HK-103	CAPACITOR	0.01μF,50V
C9	QEKJ0JM-107	E CAPACITOR	100μF,6.3V
C10	QCYA1EK-104	CAPACITOR	0.1μF,25V
C11	QEKJ1HM-335	E CAPACITOR	3.3μF,50V
C12	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
C13	QCYA1EK-104	CAPACITOR	0.1μF,25V
C14	QCTA1CH-221	CAPACITOR	220pF,16V
C15	QCTA1CH-680	CAPACITOR	68pF,16V
C16	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
C17	QEKJ1HM-474	E CAPACITOR	0.47μF,50V
C18	QCYA1EK-223	CAPACITOR	0.022μF,25V
C19	QCYA1EK-104	CAPACITOR	0.1μF,25V
C20	QCYA1EK-333	CAPACITOR	0.033μF,25V
C21	QCYA1HK-103	CAPACITOR	0.01μF,50V
C22	QCYA1EK-104	CAPACITOR	0.1μF,25V
C23	QEKJ0JM-107	E CAPACITOR	100μF,6.3V
C24	QCYA1EK-104	CAPACITOR	0.1μF,25V
C25	QEKJ1HM-335	E CAPACITOR	3.3μF,50V
C26	QCYA1HK-103	CAPACITOR	0.01μF,50V
C27	QEKJ1CM-106	E CAPACITOR	10μF,16V
C28	QCYA1HK-103	CAPACITOR	0.01μF,50V
C29	QEKJ1CM-106	E CAPACITOR	10μF,16V
C30	QEKJ1HM-104	E CAPACITOR	0.1μF,50V
C31	QCYA1EK-104	CAPACITOR	0.1μF,25V
C32	QEKJ1HM-335	E CAPACITOR	3.3μF,50V
C34	QCYA1EK-473	CAPACITOR	0.047μF,25V
C35	QCYA1CK-224	CAPACITOR	0.22μF,16V
C36	QCTA1CH-390	CAPACITOR	39pF,16V
C37	QCYA1EK-104	CAPACITOR	0.1μF,25V
C38	QCTA1CH-151	CAPACITOR	150pF,16V
C41	QCYA1HK-103	CAPACITOR	0.01μF,50V
C42	QCYA1HK-103	CAPACITOR	0.01μF,50V
C43	QCYA1EK-104	CAPACITOR	0.1μF,25V
C45	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C47	QCTA1CH-100	CAPACITOR	10pF,16V
C48	QCTA1CH-100	CAPACITOR	10pF,16V
C53	QCTA1CH-181	CAPACITOR	180pF,16V
C54	QEKJ1HM-105	E CAPACITOR	1μF,50V
C55	QCTA1CH-180	CAPACITOR	18pF,16V
C56	QCTA1CH-6R0	CAPACITOR	6pF,16V
C57	QCTA1CH-680	CAPACITOR	68pF,16V
C61	QCTA1CH-5R0	CAPACITOR	5pF,16V
C63	QCTA1CH-271	CAPACITOR	270pF,16V
C70	QCYA1EK-223	CAPACITOR	0.022μF,25V
C270	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
C271	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
C301	QEKJ1CM-106	E CAPACITOR	10μF,16V
C302	QCYA1HK-182	CAPACITOR	0.0018μF,50V
C303	QEKJ1HM-105	E CAPACITOR	1μF,50V
C304	QCYA1EK-333	CAPACITOR	0.033μF,25V
C305	QCYA1EK-333	CAPACITOR,E939EH	0.033μF,25V

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
C306	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
C307	QCYA1HK-153	CAPACITOR	0.015μF,50V
C308	QEKJ1CM-226	E CAPACITOR	22μF,16V
C309	QCYA1HK-222	CAPACITOR	0.0022μF,50V
C310	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
C313	QFLC1HJ-223Z	F CAPACITOR	0.022μF,50V
C314	QFLC1HJ-183Z	F CAPACITOR	0.018μF,50V
C315	QEKJ1HM-105	E CAPACITOR	1μF,50V
C317	QEKJ1CM-106	E CAPACITOR	10μF,16V
C318	QCYA1HK-332	CAPACITOR	0.0033μF,50V
C319	QCYA1HK-103	CAPACITOR	0.01μF,50V
C320	QFV11HJ-333AZ	F CAPACITOR	0.033μF,50V
C321	QCYA1HK-331	CAPACITOR	330pF,50V
C322	QEKJ1CM-106	E CAPACITOR	10μF,16V
C323	QCYA1HK-103	CAPACITOR	0.01μF,50V
C324	QCYA1HK-332	CAPACITOR	0.0033μF,50V
C325	QFLC1HJ-333Z	F CAPACITOR	0.033μF,50V
C326	QCYA1HK-331	CAPACITOR	330pF,50V
C327	QETC1CM-107	E CAPACITOR	100μF,16V
C351	QEKJ1CM-106	E CAPACITOR	10μF,16V
C354	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
C401	QEKJ1CM-106	E CAPACITOR	10μF,16V
C403	QEKJ1CM-106	E CAPACITOR	10μF,16V
C404	QEKJ1CM-336	E CAPACITOR	33μF,16V
C405	QCYA1EK-473	CAPACITOR	0.047μF,25V
C406	QEKJ1CM-106	E CAPACITOR	10μF,16V
C407	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
C408	QCYA1HK-153	CAPACITOR	0.015μF,50V
C409	QCYA1HK-103	CAPACITOR	0.01μF,50V
C415	QCYA1HK-103	CAPACITOR	0.01μF,50V
C416	QCYA1EK-473	CAPACITOR	0.047μF,25V
C417	QEKJ1HM-224	E CAPACITOR	0.22μF,50V
C419	QCYA1HK-103	CAPACITOR	0.01μF,50V
C420	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
C421	QCYA1HK-153	CAPACITOR	0.015μF,50V
C422	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
C423	QEKJ1CM-106	E CAPACITOR	10μF,16V
C424	QCYA1EK-473	CAPACITOR	0.047μF,25V
C425	QEKJ1CM-336	E CAPACITOR	33μF,16V
C426	QEKJ1CM-106	E CAPACITOR	10μF,16V
C428	QEKJ1CM-106	E CAPACITOR	10μF,16V
C429	QEKJ1CM-106	E CAPACITOR	10μF,16V
C431	QEKJ1CM-476	E CAPACITOR	47μF,16V
C432	QEKJ1HM-105	E CAPACITOR	1μF,50V
C433	QEKJ1CM-106	E CAPACITOR	10μF,16V
C434	QEKJ1CM-226	E CAPACITOR	22μF,16V
C435	QEKJ1CM-226	E CAPACITOR	22μF,16V
C436	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
C437	QEKJ1CM-106	E CAPACITOR	10μF,16V
C438	QEKJ1HM-105	E CAPACITOR	1μF,50V
C439	QEKJ1HM-105	E CAPACITOR	1μF,50V
C440	QEKJ1CM-336	E CAPACITOR	33μF,16V
C441	QEKJ1CM-336	E CAPACITOR	33μF,16V
C443	QEKJ1HM-105	E CAPACITOR	1μF,50V
C447	QCYA1HK-102	CAPACITOR	0.001μF,50V
C454	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
C461	QEKJ1CM-106	E CAPACITOR	10μF,16V
C462	QEKJ1CM-106	E CAPACITOR	10μF,16V
C463	QEKJ1CM-106	E CAPACITOR	10μF,16V
C466	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
C471	QEKJ1CM-106	E CAPACITOR	10μF,16V
C472	QEKJ1CM-106	E CAPACITOR	10μF,16V
C473	QEKJ1CM-106	E CAPACITOR	10μF,16V
C474	QEKJ1CM-106	E CAPACITOR	10μF,16V
C475	QEKJ1CM-106	E CAPACITOR	10μF,16V
C477	QEKJ1CM-106	E CAPACITOR	10μF,16V
C478	QEKJ1CM-106	E CAPACITOR	10μF,16V
C479	QEKJ1CM-106	E CAPACITOR	10μF,16V
C480	QEKJ1CM-106	E CAPACITOR	10μF,16V
C481	QEKJ1CM-106	E CAPACITOR	10μF,16V
C484	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
C485	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
C531	QCYA1HK-561	CAPACITOR	560pF,50V
C701	QAT3120-450Z	TRIM CAPACITOR,TIMER CLOCK	
C702	QCTA1CH-180	CAPACITOR	18pF,16V
C703	QCYA1HK-103	CAPACITOR	0.01μF,50V
C704	QERF1CM-106	E CAPACITOR	10μF,16V
C706	QCTA1CH-101	CAPACITOR	100pF,16V
C709	QCYA1EK-104	CAPACITOR	0.1μF,25V
C712	QCYA1HK-102	CAPACITOR	0.001μF,50V
C715	QCYA1HK-103	CAPACITOR	0.01μF,50V
C717	QEKJ1CM-336	E CAPACITOR	33μF,16V
C719	PU60676-223	E CAPACITOR	0.022μF,5.5V
C730	QEKJ1CM-106	E CAPACITOR	10μF,16V
C731	QCYA1HK-103	CAPACITOR	0.01μF,50V
C736	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C740	QCYA1HK-103	CAPACITOR	0.01μF,50V
C751	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C852	QEKJ1HM-335	E CAPACITOR	3.3μF,50V
C853	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C855	QCYA1HK-102	CAPACITOR	0.001μF,50V
C862	QCYA1EK-333	CAPACITOR	0.033μF,25V
C863	PECA0741-335MZ	E CAPACITOR(OS)	3.3μF,20V
C865	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C866	QCYA1EK-333	CAPACITOR	0.033μF,25V
C962	QCYA1HK-102	CAPACITOR	0.001μF,50V
C963	QETC1AM-107	E CAPACITOR	100μF,10V
C964	QEKJ1CM-226	E CAPACITOR	22μF,16V
C965	QETC1AM-107	E CAPACITOR	100μF,10V
C966	QEKJ1CM-106	E CAPACITOR	10μF,16V
C1002	QCYA1HK-102	CAPACITOR	0.001μF,50V
C1004	QCYA1HK-102	CAPACITOR	0.001μF,50V
C1005	QCYA1EK-223	CAPACITOR	0.022μF,25V
C1006	QETC1HM-225	E CAPACITOR	2.2μF,50V
C1007	QCYA1EK-473	CAPACITOR,E939EH	0.047μF,25V
C1010	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
C1011	QCYA1EK-104	CAPACITOR	0.1μF,25V
C1053	QCYA1EK-473	CAPACITOR	0.047μF,25V
C1054	QCYA1EK-473	CAPACITOR	0.047μF,25V
C1055	QCYA1EK-473	CAPACITOR	0.047μF,25V
C1058	QCYA1EK-473	CAPACITOR	0.047μF,25V
C1059	QETC1CM-476	E CAPACITOR	47μF,16V
C1101	QCYA1HK-102	CAPACITOR	0.001μF,50V
C1103	QCYA1EK-563	CAPACITOR	0.056μF,25V
C1104	QCTA1CH-101	CAPACITOR	100pF,16V
C1105	QCYA1EK-223	CAPACITOR	0.022μF,25V
C1106	QCYA1HK-103	CAPACITOR	0.01μF,50V
C1107	QCYA1HK-102	CAPACITOR	0.001μF,50V
C1110	QCYA1HK-222	CAPACITOR	0.0022μF,50V
C1111	QCYA1EK-104	CAPACITOR	0.1μF,25V
C1113	QETC1HM-106	E CAPACITOR	10μF,50V
C1114	QETC1HM-106	E CAPACITOR	10μF,50V
C1115	QETC1AM-107	E CAPACITOR	100μF,10V
C1116	QETC1HM-105	E CAPACITOR	1μF,50V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C1301	QEKJ1HM-105	E CAPACITOR	1μF,50V
C1304	QCTA1CH-560	CAPACITOR	56pF,16V
C1306	QCYA1HK-103	CAPACITOR	0.01μF,50V
C1307	QCTA1CH-150	CAPACITOR	15pF,16V
C1308	QCTA1CH-330	CAPACITOR	33pF,16V
C1309	QCTA1CH-330	CAPACITOR	33pF,16V
C1314	QCTA1CH-220	CAPACITOR	22pF,16V
C1315	QCTA1CH-131	CAPACITOR	130pF,16V
C1401	QEKJ1CM-226	E CAPACITOR	22μF,16V
C1402	QEKJ1CM-226	E CAPACITOR	22μF,16V
C1403	QCYA1HK-103	CAPACITOR	0.01μF,50V
C1404	QEKJ1CM-106	E CAPACITOR	10μF,16V
C1405	QCTA1CH-330	CAPACITOR	33pF,16V
C1951	QEPF1EM-475	NP E CAPACITOR	4.7μF,25V
C1952	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
C1953	QCYA1HK-103	CAPACITOR	0.01μF,50V
L1	PELN0530-101JZ	COIL	100μH
L2	PELN1203	COIL	
L3	PU59152-5R6J	COIL	5.6μH
L4	PELN0530-101JZ	COIL	100μH
L5	PU59152-820J	COIL	82μH
L7	PELN0530-221JZ	COIL	220μH
L8	PELN0530-221JZ	COIL	220μH
L9	PU59152-101J	COIL	100μH
L10	PU59152-221J	COIL	220μH
L11	PELN0530-220JZ	COIL	22μH
L17	PU59152-121J	COIL	120μH
L20	PELN0530-561JZ	COIL	560μH
L301	PU58308-123J	COIL	12mH
L703	PU48530-100K	COIL	10μH
L1001	PU59152-R22J	COIL	0.22μH
L1003	PU59152-1R0J	COIL	1μH
L1011	PELN1036-241Y	FERRATE BEADS	
L1081	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
L1302	PU59152-220J	COIL	22μH
L1303	PU59152-220J	COIL	22μH
L1304	PU59152-2R2J	COIL	2.2μH
L1305	PU59152-330J	COIL	33μH
L1401	PU59152-1R0J	COIL	1μH
⚠ CF701	PEVB0594-Z	RESONATOR	
⚠ CF851	PU60440-2	RESONATOR	
⚠ X1	PEVB0679	CRYSTAL RESONATOR	
⚠ X701	PEVB0422	CRYSTAL RESONATOR	
PS701	PU61433	REEL SENSOR	
PS702	PU61433	REEL SENSOR	
⚠ T301	PELN0860	OSC TRANSFORMER	
⚠ T302	PELN0861	OSC TRANSFORMER	
T1001	PELN0806	LC TRAP	
ET1	PQ21623-1-2	EARTH PLATE(RF),TUNER	
HD1	PEME0978	HOLDER,PDC	
W1	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W2	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
OT1	PQ46408-1-2	SENSOR CAP,X2 Q704 Q705	
OT2	SDSF3008Z	SCREW,X2 TERMINAL BOARD	
SD1	PQ35567	SHIELD CASE,VSC	
⚠ TU1001	PERF0202	TUNER UNIT	
UN1001	PERF0259	IF UNIT	
CN1	PEMC1168-016	CONNECTOR,(1-16)PRE/REC	
CN301	PU60727-7	CONNECTOR,(1-7)A/C HEAD	
CN302	PU60727-2	CONNECTOR,(1-2)FE HEAD	
CN401	PEMC1168-006	CONNECTOR,(1-6)AUDIO PRE/REC	
CN701	PEMC1077	CONNECTOR,(1-8)CAP MDA	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
CN702	PU61434-1-1	CONNECTOR,(1-5)ROTARY ENCORDE
CN703	PU60727-2	CONNECTOR,(1-2)LOADING MOTOR
CN705	PEMC1101-011	CONNECTOR,(1-11)JOG
CN751	PEMC0714-008	CONNECTOR,(1-8)POC/ATS＋
CN802	PEMC1101-013	CONNECTOR(1-13)DISPLAY
CN851	PU60727-6	CONNECTOR,(1-6)DD SENS/MOTOR
CN901	PEMC1101-016	CONNECTOR,(1-16)SWITCH REG
CN1102	PEMC1101-004	CONNECTOR,(1-4)DRUM MOTOR
CN1401	PEMC1168-017	CONNECTOR,(1-17)TERMINAL
CN1402	PEMC1168-018	CONNECTOR,(1-18)TERMINAL
CN1403	PEMC1101-013	CONNECTOR,(1-13)SWITCH/JACK
⚠ CP701	ICP-N25	CIRCUIT PROTECTOR
⚠ CP851	ICP-N20	CIRCUIT PROTECTOR
⚠ CP901	ICP-N20	CIRCUIT PROTECTOR
⚠ CP902	ICP-N25	CIRCUIT PROTECTOR
⚠ CP1101	ICP-N15	CIRCUIT PROTECTOR

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TERMINAL BOARD ASSEMBLY <06>

PW1	PB10994J	TERMINAL BOARD ASSEMBLY,E939EG	
	PB10994K	TERMINAL BOARD ASSEMBLY,E939EH	
IC201	BA7630S	IC	
IC601	BA3129	IC	
Q201	2SA1576(QRS)	TRANSISTOR	
	or 2SB1218A(QRS)	TRANSISTOR	
Q202	2SA1576(QRS)	TRANSISTOR	
	or 2SB1218A(QRS)	TRANSISTOR	
Q203	2SC4081(QRS)	TRANSISTOR	
	or 2SD1819A(QRS)	TRANSISTOR	
Q204	2SA1576(QRS)	TRANSISTOR	
	or 2SB1218A(QRS)	TRANSISTOR	
Q205	2SA1576(QRS)	TRANSISTOR	
	or 2SB1218A(QRS)	TRANSISTOR	
Q206	2SC4081(QRS)	TRANSISTOR	
	or 2SD1819A(QRS)	TRANSISTOR	
Q208	2SD1450S,T	TRANSISTOR	
	or 2SD1302(ST)	TRANSISTOR	
Q601	DTC144WU	TRANSISTOR	
	or UN521E	TRANSISTOR	
Q1411	2SA1576(QRS)	TRANSISTOR	
	or 2SB1218A(QRS)	TRANSISTOR	
Q1412	2SA933S(QRS)	TRANSISTOR	
	or 2SA1267(YG)-TJK	TRANSISTOR	
D202	MTZ12AT-77	ZENER DIODE	
R201	QRD123J-331SX	RESISTOR	330Ω,1/2W
R202	QRSA08J-750YN	RESISTOR	75Ω,1/10W
R203	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
R204	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R205	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R206	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R207	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R208	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R209	QRSA08J-335YN	RESISTOR	3.3MΩ,1/10W
R210	QRD123J-331SX	RESISTOR	330Ω,1/2W
R211	QRSA08J-750YN	RESISTOR	75Ω,1/10W
R212	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R213	QRSA08J-102YN	RESISTOR	1kΩ,1/10W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R214	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R215	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R216	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R217	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R218	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R221	QRSA08J-750YN	RESISTOR	75Ω,1/10W
R222	QRSA08J-750YN	RESISTOR	75Ω,1/10W
R225	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R226	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R227	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R228	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R601	QRSA08J-0R0Y	RESISTOR,E939EG	0Ω,1/10W
	QRSA08J-333YN	RESISTOR,E939EH	33kΩ,1/10W
R602	QRSA08J-103YN	RESISTOR,E939EH	10kΩ,1/10W
R603	QRSA08J-0R0Y	RESISTOR,E939EG	0Ω,1/10W
	QRSA08J-333YN	RESISTOR,E939EH	33kΩ,1/10W
R604	QRSA08J-103YN	RESISTOR,E939EH	10kΩ,1/10W
R605	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R606	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R607	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R608	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R609	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R610	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R611	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R612	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R613	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R614	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R615	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R620	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1411	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1412	QRD123J-331SX	RESISTOR	330Ω,1/2W
R1413	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R1414	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1415	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1416	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
C201	QETA0JM-477	E CAPACITOR	470μF,6.3V
C203	QCYA1HK-103	CAPACITOR	0.01μF,50V
C204	QETA1CM-337	E CAPACITOR	330μF,16V
C205	QEKJ1CM-476	E CAPACITOR	47μF,16V
C206	QCYA1EK-104	CAPACITOR	0.1μF,25V
C207	QEKJ1HM-474	E CAPACITOR	0.47μF,50V
C208	QEP61HM-474	NP E CAPACITOR	0.47μF,50V
C209	QEP61HM-105	NP E CAPACITOR	1μF,50V
C210	QEKJ1HM-105	E CAPACITOR	1μF,50V
C211	QETA0JM-477	E CAPACITOR	470μF,6.3V
C212	QCTA1CH-330	CAPACITOR	33pF,16V
C215	QCTA1CH-330	CAPACITOR	33pF,16V
C221	QEKJ1CM-476	E CAPACITOR	47μF,16V
C601	QEKJ1CM-106	E CAPACITOR	10μF,16V
C602	QEKJ1CM-476	E CAPACITOR	47μF,16V
C603	QEKJ1CM-106	E CAPACITOR	10μF,16V
C604	QEKJ1CM-476	E CAPACITOR	47μF,16V
C1411	QCYA1HK-681	CAPACITOR	680pF,50V
C1412	QCYA1HK-681	CAPACITOR	680pF,50V
C1413	QCYA1HK-102	CAPACITOR	0.001μF,50V
C1414	QCYA1HK-102	CAPACITOR	0.001μF,50V
C1417	QCYA1HK-681	CAPACITOR	680pF,50V
C1418	QCYA1HK-681	CAPACITOR	680pF,50V
C1424	QCYA1HK-681	CAPACITOR	680pF,50V
C1425	QCYA1HK-681	CAPACITOR	680pF,50V
L203	PU59152-1R0J	COIL	1μH
L206	PU59152-1R0J	COIL	1μH

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
L1411	PU59152-4R7J	COIL	4.7μH
L1412	PU59152-4R7J	COIL	4.7μH
L1413	PU59152-4R7J	COIL	4.7μH
L1414	PU59152-4R7J	COIL	4.7μH
L1415	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
L1416	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
L1417	PU59152-1R2J	COIL	1.2μH
L1418	PU59152-4R7J	COIL	4.7μH
L1419	PU59152-4R7J	COIL	4.7μH
L1422	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
L1423	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
L1424	PU59152-1R0J	COIL	1μH
L1426	PU59152-4R7J	COIL	4.7μH
L1427	PU59152-4R7J	COIL	4.7μH
L1428	PU59152-R47J	COIL	0.47μH
EQ201	PELN0877	EQUALIZER	
S1411	PESW0695	SLIDE SWITCH,RAE OUT	
W201	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W202	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W203	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W204	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W205	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W206	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W207	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
J1411	PEMC1019	RGB21PIN SOCKET,AV1	
J1412	PEMC1019	RGB21PIN SOCKET,AV2	
J1413	PEMC1009-02	PIN JACK,A OUT(R)	
J1414	PEMC1009-03	PIN JACK,A OUT(L)	
J1415	PU60659	MINI JACK,PAUSE/RAE	
ET1	PQ21987	EARTH PLATE,TERMINAL	
TB1	PQ35509T-2	TERMINAL BOARD ASSY	
OT1	SDSF3008Z	SCREW,X7 TERMINAL BOARD	
CN1411	PEMC1167-117	CONNECTOR,(1-17)MAIN	
CN1412	PEMC1167-118	CONNECTOR,(1-18)MAIN	

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AUDIO/CONTROL HEAD BOARD ASSY <12>

PW1	PB40068A-01	A/CTL HEAD BOARD ASSEMBLY
CN1	PU60910-107	CONNECTOR,(1-7)MAIN

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DEMOD BOARD ASSEMBLY <14>

PW1	PB10974B	DEMOD BOARD ASSEMBLY,E939EH
	PB10974C	DEMOD BOARD ASSEMBLY,E939EG
IC1501	UPC1391H	IC
IC1502	TDA8415	IC
or	TDA8416	IC
IC1503	SAA7283ZP	IC,E939EH
Q1501	2SC3354	TRANSISTOR,E939EH
Q1507	DTC114EU	TRANSISTOR,E939EG
or	UN5211	TRANSISTOR,E939EG

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	Q1508	DTC114EU	TRANSISTOR,E939EG	
		or UN5211	TRANSISTOR,E939EG	
	D1502	1SV214	DIODE,E939EH	
	D1503	1N4148M	DIODE,E939EH	
		or 1SS133	DIODE,E939EH	
	R1501	QRSA08J-822YN	RESISTOR,E939EH	8.2kΩ,1/10W
	R1502	QRSA08J-332YN	RESISTOR,E939EH	3.3kΩ,1/10W
	R1503	QRSA08J-681YN	RESISTOR,E939EH	680Ω,1/10W
	R1504	QRSA08J-271YN	RESISTOR,E939EH	270Ω,1/10W
	R1505	QRSA08J-470YN	RESISTOR,E939EH	47Ω,1/10W
	R1514	QRSA08J-391YN	RESISTOR	390Ω,1/10W
	R1515	QRSA08J-271YN	RESISTOR	270Ω,1/10W
	R1516	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R1518	QRSA08J-561YN	RESISTOR	560Ω,1/10W
	R1519	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R1520	QRSA08J-222YN	RESISTOR,E939EH	2.2kΩ,1/10W
		QRSA08J-392YN	RESISTOR,E939EG	3.9kΩ,1/10W
	R1521	QRSA08J-102YN	RESISTOR,E939EG	1kΩ,1/10W
		QRSA08J-272YN	RESISTOR,E939EH	2.7kΩ,1/10W
	R1522	QRSA08J-222YN	RESISTOR,E939EH	2.2kΩ,1/10W
		QRSA08J-392YN	RESISTOR,E939EG	3.9kΩ,1/10W
	R1523	QRSA08J-102YN	RESISTOR,E939EG	1kΩ,1/10W
		QRSA08J-272YN	RESISTOR,E939EH	2.7kΩ,1/10W
	R1524	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R1527	QRSA08J-333YN	RESISTOR,E939EH	33kΩ,1/10W
	R1528	QRSA08J-182YN	RESISTOR,E939EH	1.8kΩ,1/10W
	R1529	QRSA08J-222YN	RESISTOR,E939EH	2.2kΩ,1/10W
		QRSA08J-0R0Y	RESISTOR,E939EG	0Ω,1/10W
	R1530	QRSA08J-222YN	RESISTOR,E939EH	2.2kΩ,1/10W
	R1531	QRSA08J-0R0Y	RESISTOR,E939EG	0Ω,1/10W
		QRSA08J-222YN	RESISTOR,E939EH	2.2kΩ,1/10W
	R1532	QRSA08J-222YN	RESISTOR,E939EH	2.2kΩ,1/10W
	R1533	QRSA08J-102YN	RESISTOR,E939EH	1kΩ,1/10W
	R1534	QRSA08J-101YN	RESISTOR,E939EH	100Ω,1/10W
	R1535	QRSA08J-103YN	RESISTOR,E939EH	10kΩ,1/10W
	R1536	QRSA08J-223YN	RESISTOR,E939EH	22kΩ,1/10W
	R1537	QRSA08J-105YN	RESISTOR,E939EH	1MΩ,1/10W
	R1538	QRSA08J-684YN	RESISTOR,E939EH	680kΩ,1/10W
	R1540	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	R1541	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	R1542	QRSA08J-470YN	RESISTOR,E939EH	47Ω,1/10W
	R1543	QRD161J-220	RESISTOR,E939EH	22Ω,1/6W
	VR1501	QVZ3521-103	V RESISTOR,SEPARATION	
	C1501	QCYA1HK-103	CAPACITOR,E939EH	0.01μF,50V
	C1502	QCYA1HK-103	CAPACITOR,E939EH	0.01μF,50V
	C1503	QCYA1HK-103	CAPACITOR,E939EH	0.01μF,50V
	C1508	QCYA1HK-103	CAPACITOR,E939EH	0.01μF,50V
	C1510	QCTA1CH-220	CAPACITOR	22pF,16V
	C1511	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C1512	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C1513	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C1514	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C1515	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
	C1516	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
	C1520	QCYA1HK-682	CAPACITOR,E939EH	0.0068μF,50V
	C1521	QCYA1HK-682	CAPACITOR,E939EH	0.0068μF,50V
	C1525	QCYA1HK-103	CAPACITOR,E939EH	0.01μF,50V
	C1526	QEKJ1CM-106	E CAPACITOR,E939EH	10μF,16V
	C1527	QCYA1EK-473	CAPACITOR,E939EH	0.047μF,25V
	C1528	QEKJ1HM-224	E CAPACITOR,E939EH	0.22μF,50V
	C1529	QEKJ1CM-106	E CAPACITOR,E939EH	10μF,16V
	C1530	QEKJ1HM-104	E CAPACITOR,E939EH	0.1μF,50V

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	C1531	QEKJ1CM-106	E CAPACITOR	10μF,16V
	C1532	QCYA1HK-103	CAPACITOR,E939EH	0.01μF,50V
	C1533	QEKJ1HM-224	E CAPACITOR,E939EH	0.22μF,50V
	C1534	QCYA1HK-103	CAPACITOR,E939EH	0.01μF,50V
	C1535	QEKJ1CM-336	E CAPACITOR,E939EH	33μF,16V
	C1538	QCYA1HK-103	CAPACITOR,E939EH	0.01μF,50V
	C1539	QEKJ1CM-106	E CAPACITOR,E939EH	10μF,16V
	C1540	QCTA1CH-100	CAPACITOR,E939EH	10pF,16V
	C1541	QEKJ1CM-106	E CAPACITOR,E939EH	10μF,16V
	C1542	QCTA1CH-221	CAPACITOR,E939EH	220pF,16V
	C1543	QCYA1HK-103	CAPACITOR,E939EH	0.01μF,50V
	C1544	QEKJ1CM-106	E CAPACITOR,E939EH	10μF,16V
	C1545	QCYA1HK-103	CAPACITOR,E939EH	0.01μF,50V
	C1546	QEKJ1HM-105	E CAPACITOR,E939EH	1μF,50V
	C1548	QCYA1HK-103	CAPACITOR,E939EH	0.01μF,50V
	C1549	QCYA1EK-223	CAPACITOR,E939EH	0.022μF,25V
	C1550	QEKJ1HM-334	E CAPACITOR,E939EH	0.33μF,50V
	C1551	QCTA1CH-101	CAPACITOR,E939EH	100pF,16V
	C1552	QCTA1CH-101	CAPACITOR,E939EH	100pF,16V
	C1553	QCYA1HK-103	CAPACITOR,E939EH	0.01μF,50V
	C1554	QCYA1EK-473	CAPACITOR,E939EH	0.047μF,25V
	C1556	QCTA1CH-101	CAPACITOR	100pF,16V
	C1557	QCTA1CH-101	CAPACITOR	100pF,16V
	L1501	PU59152-4R7J	COIL,E939EH	4.7μH
	L1502	PU59152-1R0J	COIL,E939EH	1μH
	L1505	PU59152-120J	COIL,E939EH	12μH
	CF1503	PEVB0677	C DISCRIMINATER	
	CF1504	PU52775-2	CERAMIC FILTER	
	LC1501	PU59736-102	N FILTER,E939EH	
	LC1502	PU59736-102	N FILTER,E939EH	
△	X1501	PEVB0479	CRYSTAL RESONATOR	
△	X1502	PEVB0660	CRYSTAL RESONATOR,E939EH	
	W1506	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	W1507	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	W1508	QRSA08J-0R0Y	RESISTOR,E939EH	0Ω,1/10W
	W1509	QRSA08J-0R0Y	RESISTOR,E939EH	0Ω,1/10W
	W1510	QRSA08J-0R0Y	RESISTOR,E939EH	0Ω,1/10W
	SD1	PQ35058-1-3	SHIELD COVER,X2	
	SD2	PQ35057	SHIELD FRAME	
	CN1501	PEMC0712-108	PIN HEADER,(2-9)MAIN E939EH	
		PEMC0712-109	PIN HEADER,(2-9)MAIN E939EG	
	CN1502	PEMC0712-105	PIN HEADER,(2-6)MAIN	

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DISPLAY/SW BOARD ASSEMBLY <28>

REF No.	PART No.	PART NAME, DESCRIPTION
PW1	PB11000B1	DISPLAY/SWITCH BOARD ASSY,E939EG
	PB11000C1	DISPLAY/SWITCH BOARD ASSY,E939EH
IC1	UPD16311GC(K)	IC
	or UPD16311GC(E)	IC
	or UPD16311GC(P)	IC
IC2	SPS-442-1	IR DETECT UNIT
	or HC-377J	IR DETECT UNIT
	or GP1U581X	IR DETECT UNIT
D1	1SS133	DIODE
	or 1N4148M	DIODE
D2	1SS133	DIODE
	or 1N4148M	DIODE

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
D3	1SS133	DIODE	
	or 1N4148M	DIODE	
D4	1SS133	DIODE	
	or 1N4148M	DIODE	
D5	1SS133	DIODE	
	or 1N4148M	DIODE	
D6	1SS133	DIODE	
	or 1N4148M	DIODE	
D10	RD3.3ES-T1B2	ZENER DIODE	
D12	SLR-342MG3F	LE DIODE,A.S/L TIMER	
D13	SLR-56DU3F	LE DIODE,T SCAN	
D14	SLR-56DU3F	LE DIODE,T SCAN	
R1	QRD161J-333	RESISTOR	33kΩ,1/6W
R2	QRD161J-333	RESISTOR	33kΩ,1/6W
R3	QRD161J-333	RESISTOR	33kΩ,1/6W
R4	QRD161J-333	RESISTOR	33kΩ,1/6W
R5	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R6	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R7	QRD161J-102	RESISTOR	1kΩ,1/6W
R8	QRD161J-563	RESISTOR	56kΩ,1/6W
R9	QRD161J-103	RESISTOR	10kΩ,1/6W
R10	QRD161J-103	RESISTOR	10kΩ,1/6W
R11	QRD161J-103	RESISTOR	10kΩ,1/6W
R12	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R13	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R14	QRD161J-333	RESISTOR	33kΩ,1/6W
R18	QRD161J-331	RESISTOR	330Ω,1/6W
R19	QRD161J-331	RESISTOR	330Ω,1/6W
R20	QRD161J-331	RESISTOR	330Ω,1/6W
R25	QRD161J-333	RESISTOR	33kΩ,1/6W
R26	QRD161J-333	RESISTOR	33kΩ,1/6W
R27	QRD161J-333	RESISTOR	33kΩ,1/6W
R28	QRD161J-333	RESISTOR	33kΩ,1/6W
R29	QRD161J-560	RESISTOR	56Ω,1/6W
C1	QEKJ0JM-336	E CAPACITOR	33μF,6.3V
C2	QCFB1HZ-104	CAPACITOR	0.1μF,50V
C3	QEKC1HM-106	E CAPACITOR	10μF,50V
C4	QCSB1HJ-330	CAPACITOR	33pF,50V
C5	QCSB1HJ-470	CAPACITOR	47pF,50V
C6	QETC0JM-227	E CAPACITOR	220μF,6.3V
C7	QCVB1CM-103	CAPACITOR	0.01μF,16V
C8	QCSB1HJ-100	CAPACITOR	10pF,50V
C10	QCC11EJ-473	CAPACITOR	0.047μF,25V
C11	QCC11EJ-473	CAPACITOR	0.047μF,25V
C12	QCC11EJ-104	CAPACITOR	0.1μF,25V
L1	PU48530-101K	COIL	100μH
S5	PU60392-2-2	TACT SWITCH,PAUSE	
S6	PU60392-2-2	TACT SWITCH,REC	
S7	PU60392-2-2	TACT SWITCH,PLAY	
S8	PU60392-2-2	TACT SWITCH,STOP/EJECT	
S13	PU60392-2-2	TACT SWITCH,REVIEW	
S15	PU60392-2-2	TACT SWITCH,A.S/L TIMER	
S17	PU60392-2-2	TACT SWITCH,FF	
S18	PU60392-2-2	TACT SWITCH,REW	
FW1	PW30101-80AA442	PARALLEL WIRE	
FW2	PW30101-60AA442	PARALLEL WIRE	
DI1	PEDP0189-02	FLUORESCENT DISPLAY PANEL	
HD1	PQM30038-5	LED HOLDER,D12	
HD2	PQ34668	FDP HOLDER(L)	
HD3	PQ34669	FDP HOLDER(R)	
CN1	PEMC1102-113	CONNECTOR,(1-13)MAIN	
CN2	PEMC0889-015	CONNECTOR,(1-15)SWITCH/JACK	

#△ REF No.	PART No.	PART NAME, DESCRIPTION

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REC SAFETY BOARD ASSEMBLY <32>

PW4	PB11000B4	REC SAFETY BOARD ASSEMBLY,E939EG
	PB11000C4	REC SAFETY BOARD ASSEMBLY,E939EH
S41	PESW0589	PUSH SWITCH

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CASSETTE SW BOARD ASSEMBLY <33>

PW3	PB11000B3	CASSETTE SWITCH BOARD ASSY,E939EG
	PB11000C3	CASSETTE SWITCH BOARD ASSY,E939EH
S42	PU61320	PUSH SWITCH,CASSETTE SWITCH

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SW/JACK BOARD ASSEMBLY <36>

PW2	PB11000B2	SWITCH/JACK BOARD ASSY,E939EG	
	PB11000C2	SWITCH/JACK BOARD ASSY,E939EH	
D7	1SS133	DIODE	
	or 1N4148M	DIODE	
D11	SLR-55VC3F	LE DIODE	
D20	1SS133	DIODE,E939EH	
	or 1N4148M	DIODE,E939EH	
D35	1SS133	DIODE	
	or 1N4148M	DIODE	
D36	1SS133	DIODE	
	or 1N4148M	DIODE	
VR1	PERE0483-02	V RESISTOR,HEADPHONE VOLUME	
VR2	PERE0513	V RESISTOR,REC LEVEL	
R17	QRD161J-331	RESISTOR	330Ω,1/6W
R31	QRD161J-680	RESISTOR	68Ω,1/6W
R32	QRD161J-680	RESISTOR	68Ω,1/6W
R33	QRD161J-101	RESISTOR	100Ω,1/6W
R34	QRD161J-101	RESISTOR	100Ω,1/6W
R35	QRD161J-101	RESISTOR	100Ω,1/6W
R36	QRD161J-101	RESISTOR	100Ω,1/6W
R37	QRD161J-560	RESISTOR	56Ω,1/6W
C14	QCBB1HK-681	C CAPACITIR	680pF,50V
C16	QCBB1HK-681	C CAPACITIR	680pF,50V
C17	QCBB1HJ-151	CAPACITOR	150pF,50V
C18	QCBB1HJ-151	CAPACITOR	150pF,50V
C19	QCVB1CM-103	CAPACITOR	0.01μF,16V
C20	QCVB1CM-103	CAPACITOR	0.01μF,16V
L3	PU59152-4R7J	COIL	4.7μH
L4	PU59152-4R7J	COIL	4.7μH
L5	PU59152-4R7J	COIL	4.7μH
L7	PU59152-4R7J	COIL	4.7μH
L8	PU59152-4R7J	COIL	4.7μH
L9	PU59152-1R0J	COIL	1μH
S3	PU60392-2-2	TACT SWITCH,OPERATE	
S10	PU60392-2-2	TACT SWITCH,TIMER	
S12	PU60392-2-2	TACT SWITCH,A DUB	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
S14	PU60392-2-2	TACT SWITCH,INSERT
S16	PU60392-2-2	TACT SWITCH,SP/LP
S19	PU60392-2-2	TACT SWITCH,R A EDIT
S21	PU60392-2-2	TACT SWITCH,IN/OUT
S23	PU60392-2-2	TACT SWITCH,START
S40	PESW0551	SLIDE SWITCH,VSC ON/OFF
J1	PEMC1063-04	PIN JACK(SW),VIDEO
J2	PEMC1063-03	PIN JACK(SW),AUDIO(L)
J3	PEMC1063-02	PIN JACK(SW),AUDIO(R)
J4	PU60452-2	MINI JACK,HEAD PHONE
J5	PU60659	MINI JACK,R.PAUSE
CN3	PEMC0825-015	CONNECTOR,(1-15)DISPLAY/SW
CN4	PEMC1102-113	CONNECTOR,(1-13)MAIN

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PRE/REC BOARD ASSEMBLY <43>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PW1	PB10976H-01	PRE/REC BOARD ASSEMBLY	
IC101	HA118195NT	IC	
IC501	LA7257	IC	
Q101	2SC4081(QRS)	TRANSISTOR	
	or 2SD1819A(QRS)	TRANSISTOR	
Q102	DTA144WU	TRANSISTOR	
	or UN511E	TRANSISTOR	
Q103	DTC144WU	TRANSISTOR	
	or UN521E	TRANSISTOR	
Q104	2SC4081(QRS)	TRANSISTOR	
	or 2SD1819A(QRS)	TRANSISTOR	
Q503	2SC4081(QRS)	TRANSISTOR	
	or 2SD1819A(QRS)	TRANSISTOR	
Q1701	2SA1576(QRS)	TRANSISTOR	
	or 2SB1218A(QRS)	TRANSISTOR	
Q1702	2SA1576(QRS)	TRANSISTOR	
	or 2SB1218A(QRS)	TRANSISTOR	
Q1703	DTC144WU	TRANSISTOR	
	or UN521E	TRANSISTOR	
Q1704	2SA1577(RS)	TRANSISTOR	
Q1705	DTC144WU	TRANSISTOR	
	or UN521E	TRANSISTOR	
D502	1N4148M	DIODE	
	or 1SS133	DIODE	
D503	1N4148M	DIODE	
	or 1SS133	DIODE	
R101	QRSA08J-113YN	RESISTOR	11kΩ,1/10W
R102	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
R103	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R104	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R105	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R106	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R107	QRD161J-182	RESISTOR	1.8kΩ,1/6W
R109	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R110	QRD161J-681	RESISTOR	680Ω,1/6W
R111	QRSA08J-333YN	RESISTOR	33kΩ,1/10W
R501	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R502	QRSA08J-182YN	RESISTOR	1.8kΩ,1/10W
R503	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R506	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
R507	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R516	QRSA08J-563YN	RESISTOR	56kΩ,1/10W
R517	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
R518	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R519	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R520	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R1701	QRSA08J-391YN	RESISTOR	390Ω,1/10W
R1702	QRSA08J-391YN	RESISTOR	390Ω,1/10W
R1703	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R1704	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R1705	QRSA08J-683YN	RESISTOR	68kΩ,1/10W
R1706	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R1707	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1708	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
C101	QCYA1HK-103	CAPACITOR	0.01μF,50V
C102	QCYA1HK-103	CAPACITOR	0.01μF,50V
C103	QCYA1EK-104	CAPACITOR	0.1μF,25V
C104	QER60JM-107	E CAPACITOR	100μF,6.3V
C105	QCYA1EK-473	CAPACITOR	0.047μF,25V
C106	QCYA1HK-272	CAPACITOR	0.0027μF,50V
C107	QCYA1HK-103	CAPACITOR	0.01μF,50V
C108	QCYA1HK-103	CAPACITOR	0.01μF,50V
C109	QER60JM-107	E CAPACITOR	100μF,6.3V
C110	QCYA1EK-223	CAPACITOR	0.022μF,25V
C111	QCYA1EK-223	CAPACITOR	0.022μF,25V
C112	QCYA1EK-223	CAPACITOR	0.022μF,25V
C113	QCYA1EK-223	CAPACITOR	0.022μF,25V
C114	QCYA1EK-223	CAPACITOR	0.022μF,25V
C115	QCYA1EK-223	CAPACITOR	0.022μF,25V
C116	QCYA1EK-223	CAPACITOR	0.022μF,25V
C117	QCYA1EK-223	CAPACITOR	0.022μF,25V
C118	QCYA1EK-223	CAPACITOR	0.022μF,25V
C119	QCYA1EK-223	CAPACITOR	0.022μF,25V
C120	QCYA1HK-331	CAPACITOR	330pF,50V
C121	QCYA1EK-104	CAPACITOR	0.1μF,25V
C123	QCTA1CH-560	CAPACITOR	56pF,16V
C124	QCTA1CH-560	CAPACITOR	56pF,16V
C125	QCTA1CH-680	CAPACITOR	68pF,16V
C126	QCTA1CH-680	CAPACITOR	68pF,16V
C127	QCYA1HK-103	CAPACITOR	0.01μF,50V
C129	QCYA1EK-104	CAPACITOR	0.1μF,25V
C130	QCTA1CH-470	CAPACITOR	47pF,16V
C501	QCYA1HK-103	CAPACITOR	0.01μF,50V
C502	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C503	QCYA1HK-103	CAPACITOR	0.01μF,50V
C504	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C505	QER60JM-107	E CAPACITOR	100μF,6.3V
C506	QCYA1EK-104	CAPACITOR	0.1μF,25V
C507	QCYA1EK-563	CAPACITOR	0.056μF,25V
C508	QCYA1HK-221	CAPACITOR	220pF,50V
C509	QCYA1HK-102	CAPACITOR	0.001μF,50V
C510	QCYA1HK-103	CAPACITOR	0.01μF,50V
C511	QCYA1HK-102	CAPACITOR	0.001μF,50V
C512	QCYA1HK-103	CAPACITOR	0.01μF,50V
C513	QCYA1HK-271	CAPACITOR	270pF,50V
C514	QCTA1CH-150	CAPACITOR	15pF,16V
C517	QCYA1HK-102	CAPACITOR	0.001μF,50V
C518	QCYA1HK-103	CAPACITOR	0.01μF,50V
C519	QCYA1EK-223	CAPACITOR	0.022μF,25V
C1701	QCYA1EK-223	CAPACITOR	0.022μF,25V
C1702	QCTA1CH-121	CAPACITOR	120pF,16V
C1703	QCTA1CH-240	CAPACITOR	24pF,16V
C1705	QCYA1HK-102	CAPACITOR	0.001μF,50V

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C1706	QCTA1CH-560	CAPACITOR	56pF,16V
C1709	QCYA1EK-223	CAPACITOR	0.022μF,25V
L101	PELN0530-101JZ	COIL	100μH
L102	PELN0530-101JZ	COIL	100μH
L103	PU59152-181J	COIL	180μH
L501	PELN0975-100JZ	COIL	10μH
L502	PU59152-101J	COIL	100μH
L503	PU58201-150J	COIL	15μH
L1701	PU59152-100J	COIL	10μH
L1702	PU59152-1R0J	COIL	1μH
W121	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W122	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W123	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W124	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W125	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W126	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W127	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W521	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W1721	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
SD1	PQ21741-1-5	SHIELD FRAME,PRE	
CN101	PU59973-11	CONNECTOR,(1-11)UPPER DRUM	
CN102	PEMC1167-116	CONNECTOR,(1-16)MAIN	
CN501	PEMC1167-106	CONNECTOR,(1-6)MAIN	

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PDC BOARD ASSEMBLY <70>

PW5	PB11000B5	PDC BOARD ASSEMBLY,E939EG	
	PB11000C5	PDC BOARD ASSEMBLY,E939EH	
IC1901	MV1822	IC	
Q1901	DTC144ES	TRANSISTOR	
R1902	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R1903	QRD161J-221	RESISTOR	220Ω,1/6W
R1904	QRD161J-221	RESISTOR	220Ω,1/6W
R1908	QRD161J-473	RESISTOR	47kΩ,1/6W
R1909	QRD162J-221	RESISTOR	220Ω,1/6W
C1901	QCSB1HJ-560	CAPACITOR	56pF,50V
C1902	QCSB1HJ-560	CAPACITOR	56pF,50V
C1904	QFV21HJ-184	F CAPACITOR	0.18μF,50V
C1906	QFV21HJ-184	F CAPACITOR	0.18μF,50V
C1908	QCVB1CM-103	CAPACITOR	0.01μF,16V
C1909	QEKJ1CM-476	E CAPACITOR	47μF,16V
C1914	QFV21HJ-103	F CAPACITOR	0.01μF,50V
C1915	QCSB1HJ-680	CAPACITOR	68pF,50V
LC1901	PELN1226-03Z	NOISE FILTER	
LC1902	PU59736-103	N FILTER	
LC1903	PELN1226-03Z	NOISE FILTER	
LC1904	PELN1226-03Z	NOISE FILTER	
LC1906	PELN1226-03Z	NOISE FILTER	
X1901	PEVB0551	CRYSTAL RESONATOR	
CN1901	PEMC0713-108	CONNECTOR,(1-8)MAIN	

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VSC BOARD ASSEMBLY <72>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PW1	PB10995A-01	VSC BOARD ASSEMBLY	
IC2501	LC85401E	IC	
IC2502	LC32256P-80	IC	
Q2501	2SC4081(QRS)	TRANSISTOR	
Q2502	DTC144WU	TRANSISTOR	
D2501	1N4148M	DIODE	
	or MA165	DIODE	
	or 1SS133	DIODE	
R2501	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R2502	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R2503	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R2504	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R2505	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
R2506	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R2507	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R2508	QRSA08J-333YN	RESISTOR	33kΩ,1/10W
R2509	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R2510	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R2511	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R2512	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R2513	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R2514	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R2515	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R2516	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R2518	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R2519	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R2520	QRSA08J-101YN	RESISTOR	100Ω,1/10W
C2501	QEKJ0JM-107	E CAPACITOR	100μF,6.3V
C2502	QCYA1HK-562	CAPACITOR	0.0056μF,50V
C2503	QEKJ1HM-105	E CAPACITOR	1μF,50V
C2505	QEKJ0JM-107	E CAPACITOR	100μF,6.3V
C2506	QCYA1HK-103	CAPACITOR	0.01μF,50V
C2507	QEKJ1CM-226	E CAPACITOR	22μF,16V
C2508	QCYA1HK-103	CAPACITOR	0.01μF,50V
C2509	QEKJ1CM-106	E CAPACITOR	10μF,16V
C2510	QEKJ1CM-476	E CAPACITOR	47μF,16V
C2511	QCYA1HK-222	CAPACITOR	0.0022μF,50V
C2513	QCYA1HK-103	CAPACITOR	0.01μF,50V
C2514	QCYA1HK-103	CAPACITOR	0.01μF,50V
L2501	PELN0975-2R2JZ	COIL	2.2μH
LPF2501	PELN1137	LOW PASS FILTER	
⚠ CF2501	PEVB0671	RESONATOR,(16.93M)	
LC2501	PU59736-103	N FILTER	
CN2501	PEMC0712-109	PIN HEADER,(1-9)MAIN	

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JOG BOARD ASSEMBLY <85>

PW6	PB11000B6	JOG BOARD ASSEMBLY,E939EG	
	PB11000C6	JOG BOARD ASSEMBLY,E939EH	
D101	SLR-342DC3F	LE DIODE,REV	
D102	SLR-342MC3F	LE DIODE,REV SLOW	
D103	SLR-342VC3F	LE DIODE,STILL	
D104	SLR-342MC3F	LE DIODE,FWD SLOW	
D105	SLR-342DC3F	LE DIODE,FWD	
R101	QRD161J-331	RESISTOR	330Ω,1/6W
R102	QRD161J-331	RESISTOR	330Ω,1/6W
R103	QRD161J-331	RESISTOR	330Ω,1/6W
R104	QRD161J-331	RESISTOR	330Ω,1/6W
R105	QRD161J-331	RESISTOR	330Ω,1/6W
UN101	PEME0976	JOG ASSEMBLY	
CN101	PEMC1102-111	CONNECTOR,(1-11)MAIN	

SECTION 6
TECHNICAL INFORMATION

6.1 SYSCON CIRCUIT

6.1.1 Syscon CPU pin function(IC701) 1/2

PIN NO.	LABEL	IN/OUT	NOTE
1	A.LVL.R	IN	AUDIO INDICATOR LEVEL INPUT(Rch)
2	A.LVL.L	IN	AUDIO INDICATOR LEVEL INPUT(Lch)
3	IF AGC	IN	IF AGC DETECT
4	STLA	IN	SHUTTLE DIAL PULSE INPUT(A)
5	AVSS	-	GND
6	TEST	-	GND
7	X2	-	TIMER CLOCK(32.768KHz)
8	X1	-	TIMER CLOCK(32.768KHz)
9	VSS	-	GND
10	OSC1	IN	SYSTEM CLOCK(10MHz)
11	OSC2	OUT	SYSTEM CLOCK(10MHz)
12	RESET	IN	RESET AT CONNECT VCR TO AC
13	(NMI)	-	NC
14	STTS	IN	LEADER TAPE DETECT(DETECT ON:L)
15	DD BUSY	IN	DATA TRANSMIT PERMISSION for DD CPU
16	JSA	IN	JOG DIAL PULSE INPUT(A)
17	JSB	IN	JOG DIAL PULSE INPUT(A)
18	END.S	IN	TRAILER TAPE DETECT(DETECT ON:L)
19	SYNC DET	IN	SYNC DETECT(NO SYNC:H)
20	LOCK DET	IN	TUNING LOCK CHECK
21	P.SAVE	-	NC
22	TU FG	IN	TAKE-UP REEL ROTATION DET/TAPE REMAIN
23	SUP FG	IN	SUPPLY REEL ROTATION DET/TAPE REMAIN
24	PDC	OUT	NC
25	EE	OUT	EE MODE:L
26	AUX	OUT	AUX MODE:L
27	STLB	IN	SHUTTLE DIAL PULSE INPUT(B)
28	PLL DATA	OUT	TUNING IC DATA
29	PLL CE	OUT	TUNING IC CHIP ENABLE
30	DAV/MODE1	OUT	MODE1 SELECT for PDC IC
31	LCM3	OUT	LOADING MOTOR DRIVE(3)
32	CH+/DATA	OUT	IIL LOGIC CTL DATA
33	REC ST(H)	OUT	REC START:H
34	B/W	OUT	BLACK/WHITE SWITCH DETECT
35	V.REC(H)	OUT	VIDEO REC MODE:H
36	I2C SCL	OUT	NICAM DATA TRANSFER CLOCK
37	I2C SDA	OUT	NICAM CONTROL DATA OUTPUT
38	I.EXP CLK	OUT	EXPANDER IC(IC706) TRANSFER CLOCK
39	I.EXP DATA	OUT	EXPANDER IC(IC706) SERIAL DATA
40	RAE	OUT	REMOTE PAUSE CONTROL OUTPUT

Table 6-1-1 SYSCON CPU pin function(1/2)

6.1.2 Syscon CPU pin function(IC701) 2/2

PIN NO.	LABEL	IN/OUT	NOTE
41	FLYST	OUT	FLYING ERASE HEAD CONTROL(START:L)
42	MODE2	OUT	MODE2 SELECT for PDC IC
43	D.MUTE	OUT	DEMODULATOR AUDIO MUTE CONTROL(MUTE ON:H)
44	OSD CE	OUT	ON SCREEN IC CHIP ENABLE
45	VPCTL	OUT	V.PULSE ADDITION TIMING CONTROL
46	EXP DATA	OUT	EXPANDER IC(IC705) DATA OUTPUT
47	COM CLOCK	OUT	MEMORY IC DATA TRANSFER CLOCK
48	H REC ST	OUT	HiFi AUDIO REC START:L
49	DD RESET	OUT	RESET PULSE for DD CPU
50	RC IN	IN	REMOTE CONTROL DATA INPUT
51	A.MUTE	OUT	AUDIO MUTE CONTROL(MUTE ON:H)
52	CTL C/D	IN	CTL PULSE INPUT(MODE DETECT/BLANK PORTION DET)
53	P.MUTE	OUT	PICTURE MUTE CONTROL(MUTE:L)
54	COL ROT	IN	COLOUR ROTATION CONTROL INPUT
55	CAP REV	OUT	CAPSTAN MOTOR CONTROL(FWD:H/REV:L)
56	DUTY I/O	IN/OUT	IN/OUT INDEX DATA CONTROL
57	S-OUT	OUT	ON SCREEN CONTROL DATA
58	S-IN	IN	ON SCREEN/FDP CONTROL DATA
59	S-CLK	OUT	DATA TRANSFER CLOCK
60	H DATA	OUT	VIDEO IC CONTROL DATA
61	DOCTOR/STE	OUT	CLOCK OUTPUT PERMISSION
62	H CLK	OUT	VIDEO IC DATA TRANSFER CLOCK
63	VCC	-	SYSTEM POWER
64	S.DATA	OUT	SERVO IC CONTROL DATA
65	DD CS	OUT	CHIP SELECT for DD CPU
66	PAUSE(L)	OUT	CAPSTAN MOTOR CONTROL(PAUSE:L)
67	CTL CLOCK	IN	INDEX CONTROL
68	LCM1	OUT	LOADING MOTOR DRIVE(1)
69	CAP FG	IN	TAPE SPEED DETECT/BACK SPACE COUNT
70	LCM2	OUT	LOADING MOTOR DRIVE(2)
71	D.FF	IN	DRUM ROTATION DETECT/REC TIMING CONTROL
72	AVCC	-	SYSTEM POWER(for ANALOG)
73	AUDIO ENV	IN	AUTO TRACKING DATA(AVRG VOLTAGE OF PB LEVEL INPUT)
74	PROTECT	IN	SWD5V/12V DETECT
75	DRUM V	OUT	DRUM MOTOR VOLTAGE CONTROL
76	CAP V	OUT	CAPSTAN MOTOR VOLTAGE DETECT
77	6.5H DET	IN	PB SWITCHING POINT ADJUST PULSE
78	AVG FM/V.EN	IN	AUTO TRACKING DATA(AVRG VOLTAGE OF PB LEVEL INPUT)
79	P.DOWN	IN	POWER DOWN DETECT(POWER DOWN:L)
80	S CURVE	IN	TUNING CHECK

Table 6-1-2 SYSCON CPU pin function(1/2)